

**THE RAILWAY GAZETTE**  
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## OVERSEAS RAILWAYS

## SPECIAL NUMBER OF THE RAILWAY GAZETTE

*This week there has been issued a Special Number of "The Railway Gazette" devoted entirely to recent progress made by, and current problems affecting, various railways in the Colonies, Dominions, India and other countries such as Argentina and Brazil where British-owned railways operate or are partly British-officered. This number is additional to the ordinary weekly issue, and has been sent to all annual subscribers. Extra copies, price 2s., may be obtained through any newsagent, or direct from the Publisher, post free, 2s. 6d. For further particulars see Advertisement page 25.*

## The Telephone

IT was appropriate that Sir George Lee, Engineer-in-Chief of the Post Office and President of the Institution of Electrical Engineers, should last week have unveiled the memorial tablet erected by that institution in commemoration of Alexander Graham Bell. One of many popular misconceptions deprives Bell of his just claim to fame as inventor of the practical telephone, and the official recognition thus given to his work may result in removing part, at any rate, of the slur on his memory. The tablet has been placed on the wall at 16, South Charlotte Street, Edinburgh, where Bell was born on March 3, 1847. He was educated at the Edinburgh University and London University before emigrating with his father to Canada in 1870. It is therefore by no means the whole

truth to describe him (as does the "Encyclopædia Britannica") as an "American inventor and physicist." As the result of his efforts to convey speech to deaf mutes by means of sound vibrations, Dr. Bell devised the telephone which he patented on March 6, 1876, the year of the Centennial Exposition at Philadelphia, and it was there that he introduced his telephone to the public. At the ceremony last week, Sir George Lee said they had met to honour the memory of one of Edinburgh's sons whose work had been of lasting benefit to every country in the world. Dr. Bell was one of those fortunate inventors who lived to see the fruits of his work, and to have his name coupled with the whole telephone system of the United States, for he did not die until 1922, and had long since been honoured by universities and learned societies throughout the world.

## "Sir Nigel Gresley," 4-6-2

It is only a little over two years since the first British streamlined locomotive made its appearance, but they are years that after a long quiescence have seen the establishment of new standards, both in maximum speeds and sustained fast running. When the break with conventional outline was made, it resulted in what Mr. William Whitelaw, Chairman of the L.N.E.R., has described as "one of the most beautiful examples of locomotive engineering that the world knows." The compliment was paid in the course of a ceremony at Marylebone station on November 26 (reported on page 991), when the hundredth Gresley Pacific was named *Sir Nigel Gresley* in honour of its designer. Replying to the Chairman, and expressing his thanks for the presentation of a silver model of his locomotive namesake, Sir Nigel Gresley estimated that in the 26 years since his appointment as Locomotive Engineer of the former Great Northern Railway, he had been responsible for the design and construction of between fourteen and fifteen hundred locomotives, costing upwards of £7 million.

## The Week's Traffics

The returns for the past working week show a combined increase for the four main-line companies of £153,000 as compared with the corresponding period of last year. To this figure coal contributed £82,000, merchandise £56,000, and passengers £15,000. The combined total receipts for the 47 weeks are £148,381,000, an increase of £6,357,000.

	47th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
L.M.S.R. ..	+ 10,000	+ 28,000	+ 41,000	+ 79,000	+ 2,428,000	+ 4.23
L.N.E.R. ..	+ 4,000	+ 12,000	+ 22,000	+ 38,000	+ 2,049,000	+ 4.90
G.W.R. ..	- 3,000	+ 13,000	+ 15,000	+ 25,000	+ 1,217,000	+ 5.11
S.R. ..	+ 4,000	+ 3,000	+ 4,000	+ 11,000	+ 663,000	+ 3.48

Great Southern traffics totalling £85,262 show the modest increase of £43 compared with an increase of £1,997 for the previous week and a decrease of £1,134 for the week before that. Total receipts amount to £3,741,857, a decrease of £12,390. Great Northern (Ireland) receipts at £17,250 have decreased £1,100, though the total decrease for the 47 weeks is not more than £1,850. Mersey traffics for the past week have decreased £520 as last year it had the advantage of four days heavy fog. The total increase of this railway for the 47 weeks is now therefore £4,742.

## Peruvian Corporation Railways

The railways and the connecting steamers on Lake Titicaca form the chief assets of the Peruvian Corporation, and during the year ended June 30 last brought into its revenue account £220,021, against £158,363 in the previous year. Debenture interest could not, however, be fully met, and the debit balance for the year was £102,814, against £158,610 for 1935-36. Gross railway traffic

receipts rose from £975,825 to £1,031,990 and working expenses were reduced from £807,164 to £798,097. The healthy condition of the mining industry, and in particular copper mining was one of the chief factors in increasing receipts, and a slightly higher rate of exchange prevailed. Exchange restrictions have never been instituted by the Peruvian Government, although the country has suffered from the world depreciation. On the Central Railway of 259 miles on the 4 ft. 8½ in. gauge net receipts improved from £93,719 to £131,430, due to improvement of the mining traffic and economies in operation. The Southern system, consisting of the Southern Railway in Peru (535 miles on the 4 ft. 8½ in. gauge), of the Guaqui-La Paz Railway (60 miles of metre-gauge line) in Bolivia, and of connecting steamers on Lake Titicaca, increased its gross receipts from £332,209 to £389,043, partly due to the general prosperity of the South and to the Bolivian through traffic. Gross receipts of the Trujillo Railway (60 miles of 3 ft. gauge) improved from £34,433 to £37,470 chiefly because of the carriage of accumulated sugar stocks, and on the standard-gauge Payta-Piura Railway of 60 miles the new railcar experiment is promising.

### Overseas Railway Traffic

The Buenos Ayres Great Southern Railway added during the past fortnight £17,764 to its previous traffic increase, and for the 22 weeks of the current financial year its gross earnings show in currency an advance of 1,193,000 pesos or 2.84 per cent., and in sterling an advance of £212,924 or 8.64 per cent. Other Argentine traffics in the past two weeks have not been encouraging, as the increase on the Buenos Ayres & Pacific has been only £175, and the Buenos Ayres Western has a decrease of £2,357. The Central Argentine aggregate decrease of £238,738 goes against an increase of £442,781 at this time last year.

	No. of Week	Weekly Traffic	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
Buenos Ayres & Pacific	22nd	79,404	+	698	1,719,728 + 62,681
Buenos Ayres Great Southern	22nd	139,082	+	10,729	2,676,179 + 212,924
Buenos Ayres Western	22nd	47,953	-	3,341	999,939 + 103,649
Central Argentine	22nd	111,517	-	31,440	2,782,236 - 238,738
Canadian Pacific	47th	579,400	+	32,400	25,771,400 + 1,220,200
Bombay, Baroda & Central India	32nd	251,250	+	41,100	5,517,375 + 372,525

Gross earnings (£23,966,200) of the Canadian Pacific Railway for the first ten months of 1937 show an increase of £1,127,600, and the net earnings of £3,470,600 are £224,400 up.

### Success of "Save to Travel" Schemes

According to some recently-issued figures, very considerable success has attended the various experimental arrangements introduced by the British main-line railways to assist holiday travel by arranging savings schemes. The L.N.E.R., L.M.S.R., and Southern Railway and their joint lines, it will be recalled, instituted schemes some time ago whereby free savings cards and wallets to contain them are supplied. Shilling savings stamps, which can be bought at all stations and ticket offices, are affixed to the cards and subsequently accepted in payment of travel tickets. When savings cards contain ten stamps, they are exchangeable for 10s. vouchers bearing interest at approximately 5 per cent. per annum for every completed month, subject to a maximum of twelve months' interest, so that the scheme cannot be used as a permanent investment. For the first year of these schemes 571,000 stamps and 22,800 vouchers were sold, and in the first eight months of the current year, the increase as compared with the corresponding period of last year is equivalent to between 40,000 and 50,000 1s. stamps. The G.W.R. scheme is somewhat different, as that company issues free savings cards upon which ordinary 6d. postage stamps may be

affixed; the cards of stamps are accepted at G.W.R. stations in payment of railway fares.

\* \* \* \*

### Re-making a Main Line

We have already referred in our issue of November 5 to the re-making of a section of the Southern Railway main line between Sevenoaks and Tonbridge. In this issue we are able to give further details and illustrations of what is, so far as we know, an unique undertaking, and one which will probably prove to be the forerunner of others, not only on the Southern but wherever the trouble, which that company has met in this thorough-going way, is encountered. How carefully thought out the scheme has been is indicated by the fact that careful measurements were taken of the relative weights of the material displaced from the line and those which have been used to make the new roadbed, so that the latter should not be lighter than the former and thus invite the slipping of the clay cutting slopes. The use of pre-cast concrete slabs with scrap rails laid upon them was a precaution against the clay bottom lifting upwards, the rails being used not only to add weight but to assure that the slabs should not be pushed up either individually or collectively. Slabs and rails also have the important additional function of distributing the load evenly over the formation.

\* \* \* \*

### Studying Passenger Convenience

Another interesting feature, from the traffic and operating standpoint, of the work of re-making the section of Southern Railway main lines near Hildenborough, described above, was the decision to close the line entirely on Sundays and give the engineers full occupation. We understand that the idea originated with the Traffic Department in the interests of its customers, for, by adopting this method, passengers would be less inconvenienced than if there had been the much more prolonged speed restriction necessary had the work been carried out under shorter possessions of the line on a larger number of Sundays. It was also, of course, a distinct advantage to the Engineer's Department. The entire Sunday closing, adopted with such satisfactory results, was made possible by the fact that the Southern is fortunately placed in having alternative routes available over which to divert traffic during the Sundays when the work was in progress. To cater for the purely local traffic, elaborate arrangements were made to provide adequate temporary road services.

\* \* \* \*

### Rail Safety in the United States

In none of their achievements do the railways of the U.S.A. take more pride than in their record of safety. In spite of increased traffics and accelerated schedules not a passenger on any railway lost his life in a train accident in the first six months of 1937, it is stated by Mr. J. J. Pelley, President, Association of American Railroads. In the same period in 1936 there were five fatalities, but none in the corresponding months of 1935. The railways of that country carried 246,997,594 passengers in the first six months of 1937, an increase of 10,227,246, or 4.3 per cent. compared with the corresponding period of 1936. The volume of passenger traffic handled by the railways in the six-month period this year amounted to 11,671,028,000 passenger-miles (the number of passengers multiplied by the distance carried). This was an increase of 1,761,167,000 passenger-miles, or 17.8 per cent. compared with the same period in 1936. During the calendar year 1935, by a total freedom from passenger fatalities due to train accidents, the railways of the U.S.A. achieved a praiseworthy feat.

### No. 10000 at Work

The rebuilt L.N.E.R. 4-6-4 express locomotive, No. 10000, has lost no time in giving evidence of tractive power that is likely to be of the greatest advantage in meeting the exacting demands of such schedules as those of the Coronation, with its 72-m.p.h. booking between King's Cross and York and a train weighing 312 tons, or the Flying Scotsman, which now almost invariably carries a load of 14 or 15 vehicles, and yet has start-to-stop bookings at between 57.5 and 60 m.p.h. between London and Grantham and Grantham and York. Experience proves that even with the streamlined "A4" Pacifics but little margin is now left in such conditions for the recovery of time lost by permanent way or other out-of-course checks. As shown in an article appearing on page 993 of this issue, however, No. 10000 gained 13½ min. from Darlington to King's Cross, when hauling 439 tare tons on the up Flying Scotsman, and on no more than 18 per cent. cut-off worked this train, weighing fully 470 tons gross, right up the long 1 in 200 ascent to Stevenage with no lower minimum speed than 60 m.p.h. Furthermore, the 30.3 miles from Huntingdon to Stevenage, against a continuously rising tendency of the road, and finishing with 5 miles up at 1 in 200, were covered at an average speed of 70.8 m.p.h. Even with all the record locomotive feats of recent days, this appears to set a new standard in locomotive performance in this country.

\* \* \* \*

### New Stock for Vale of Rheidol Railway

The past few years have witnessed the closing of quite a number of narrow-gauge railways of considerable scenic attraction, such as the Lynton & Barnstaple, the Manifold Valley, and the Welsh Highland. Opportunities for tourists to enjoy this form of sight-seeing are therefore considerably reduced, and it is of more than ordinary interest that the 2-ft. gauge Vale of Rheidol Railway, which is owned by the G.W.R., is being provided with entirely new passenger rolling stock in preparation for next summer. This railway, which extends from Aberystwyth to the Devil's Bridge, rises to 680 ft. above sea level in the course of its twelve-mile journey. The Vale of Rheidol Light Railway was incorporated on August 6, 1897, and opened for goods traffic in August, 1902; passenger traffic began on December 22, 1902. It was amalgamated with the Cambrian Railways Company in July, 1913, and so passed into Great Western Railway ownership at grouping. The new passenger rolling stock, brief details of which are given in a news paragraph on page 994, will be built in accordance with modern practice for standard-gauge stock, with steel underframes, and will provide passengers with an uninterrupted view of the beautiful valley scenery which causes this railway to be considered one of the finest scenic lines in the country. The journey occupies 1 hr., and as many as 3,500 passengers are carried in a single week during the holiday season. Passenger traffic was formerly provided throughout the year, but since January 1, 1931, the line has been closed during the winter season.

\* \* \* \*

### Signal Instruction Car on the Etat

The constantly increasing use of electric locking, electric point detection, light signals, &c., has led the French State Railways to institute more systematic arrangements for the training of signalmen, who need better understanding of the apparatus they have to operate than was necessary in the old mechanical signalling days. Following the example of several other lines, they put into service last February an instruction car, which has been making a tour of the principal centres and is found to meet a real

want, not only signalmen but stationmasters attending the demonstrations. The car, which is described by M. Boillot, Ingénieur Principal des Services Techniques de l'Exploitation, in the *Revue générale des Chemins de fer*, has two tables fitted with model mechanical and light signalling layouts, with full-sized levers and electric locks, of different types, working with the miniature signals, track circuit relays and indicators; trucks moving on the model represent trains. There are also full-sized examples of the various lock-and-block instruments in use—Regnault, Sarroste and Loppé—the Bouré Key apparatus and accessories, with other items of interest, and diagrams. The instructor has a set of switches with which he can produce unexpectedly as the apparatus is being worked any failure that can occur in practice, and so test the signalmen's knowledge of emergency procedure.

\* \* \* \*

### The Utility of Roller Bearings

Roller bearings on railway locomotives and rolling stock were discussed after a paper had been read on the subject by Mr. J. I. Scott at a meeting of the Institution of Locomotive Engineers in Glasgow. A speaker suggested that fitting roller bearings on complete trains was better than spending money on locomotive boosters, and this point he thought should be borne in mind when discussing the initial cost of roller bearings. Another speaker thought that the most important benefit from the roller bearing was the reduction in the number of hot axleboxes. While decreased starting resistance is considerable, the rolling resistance is not much less than that of a well finished and lubricated white-metal bearing. This point was demonstrated during tests carried out on the old Midland Railway some years ago. The hot axlebox question is one which occupies a front place in the locomotive engineer's thoughts, and in this field the roller bearing is likely to show to most advantage over the ordinary bearing. Anything which can reduce the likelihood of a hot bearing is always welcome, and this especially when overheated axleboxes have done as much as £150 worth of damage in a single case.

\* \* \* \*

### Ticketless Travel

Ticket dodgers and their many wiles are known by long experience to railway officials throughout the world. As Mr. John R. Hind reminded us in his radio talk last May, there are mothers who give their tickets to their babies to play with after having conveniently obliterated the date—and more ingenious attempts are made to alter short-journey into long-journey vouchers. But completely counterfeit tickets are practically unknown in this country, and actual ticketless travel has never assumed serious proportions. In India and Burma, however, something like two million ticketless culprits are detected every year, and it is a matter for speculation how many escape. Although the fares are very low, long journeys for the poorer classes are a serious matter, and it has been estimated that perhaps as many as ten per cent. of the third class travellers on certain Indian trains are stowaways. In an article in our annual Overseas Number, Mr. E. Proctor, Deputy Chief Commissioner, Burma Railways, sagely observes that it is useless to make laws which cannot be enforced, and he doubts whether the country can afford the additional police which would be necessary to reduce appreciably the total of ticketless travellers. As he sees it, the remedy probably lies in education, for the average Burman is certainly not a thief in the ordinary affairs of life, and would probably abandon travelling without a ticket if he could be made to realise that at constituted stealing transport from the State.



### Tourist Traffic from Overseas

THE British railway companies have been closely associated with the work of the Travel & Industrial Development Association of Great Britain and Ireland since its inception, and it is gratifying to find that the association's ninth annual report records a further intensification of its work overseas. The association was formed for the purpose of carrying out national publicity overseas in order to stimulate the demand for British goods and services, and to encourage the establishment of new industries; and the report clearly indicates the measure of success which is attending these efforts. Thus the number of foreign visitors to this country during 1936 rose to the record total of 267,305, exclusive of day and weekend visitors from France and Belgium, an increase of 53,916 over the figures for 1935, while those of British nationality from all parts of the Empire were estimated at over 200,000. The national value of this tourist business, quite apart from the potential demand which may be created for British goods and services, is extremely large and has been estimated at considerably over £30,000,000 per annum. On the industrial side, Board of Trade statistics are quoted to show that 24 new factories were established in Great Britain by or with the assistance of foreign concerns, an increase of seven over the previous year. The report also points out that, in addition to rendering assistance to overseas manufacturers contemplating the establishment of industries in this country, the association gives considerable publicity to the products of British firms, and records one instance where, by this means, enquiries regarding a certain product were received from practically every country in the world.

The association pursues its activities through many channels, one of the most important being the publication of two monthly bulletins, entitled "Coming Events" and "Industrial Britain." These are both achieving a constantly expanding circulation throughout the world, and illustrations and quotations from them are reproduced widely in the overseas press. To meet increasing demands, the association produced a further five pictorial posters during the year, and fifteen are now available depicting the principal places of scenic or historical interest in the country. These are widely distributed through travel agents and are being supplied in large numbers to schools and colleges in foreign countries for exhibition in class-rooms in which English is taught. With the support of local authorities and other interests seventeen folders descriptive of particular localities have been published in three languages, the total distribution amounting to 1½ million copies. The best methods of distributing these and other publications are constantly under review, and a list of over 10,000 addresses throughout the world has been compiled and is frequently being added to with the assistance of Government, railway and steamship interests. The collection of photographs of travel and industrial interest has been largely extended, and these are supplied free of reproduction rights to many leading journals in all parts of the world. Films descriptive of London, Lancashire, cathedrals, and so on, have been prepared and shown in the public cinemas of 27 countries and non-theatrically in seventeen others.

An important feature of the association's work is participation in overseas exhibitions, and during the year it was represented at the Johannesburg Exhibition in conjunction with the British railways; at the Canadian National Exhibition; and at the Lyons International Fair. The collaboration with the railways has also been continued by the maintenance of the joint information bureau on the R.M.S. *Queen Mary*. The use of broadcasting in connection with the development of tourist travel has been widely extended, and scripts of 36 radio talks by some of

our best known travel writers were supplied to many radio stations, including 200 stations in the U.S.A. and Canada from which some thousands of separate broadcasts were obtained. The income of the association for the period under review amounted to just over £40,000, an increase of £4,000 compared with the previous year thanks to increased subscriptions from the Government, railway and other interests, but this sum is still very far below what could usefully be spent on the work to the national advantage.

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### Victorian Government Railways

FINANCIAL results from the operations of the Victorian Government Railways, Tramways, and Road Motor Public Services during the year ended June 30, 1937, showed an improvement of £80,230 over those for the previous year, as the deficit was reduced from £506,306 to £426,076. There was a gratifying increase of £451,540 in revenue, and there was a decrease of £27,642 in interest charges, but working expenses increased by £400,881. The net revenue of £2,894,162 from the joint undertakings represents a return of 3.68 per cent. on the total property investment, including stores and materials, as compared with 3.65 per cent. for the previous year. Railway net revenue was equivalent to 3.77 per cent. on railway loans, against 3.73 per cent. in 1935-36. Legislation enacted during the year under review has reduced the railway loan liability, as from July 1, 1937, by £30,000,000, representing accrued depreciation for which provision was not made in past years. Under Section 7 of the Act, a minimum of £200,000 is to be paid annually into a railway renewals and replacements fund, which will be used for undertaking work other than ordinary maintenance. This provision for depreciation is approximately £70,000 more than that made in the year under review, but it is only about one-third of the amount needed to provide adequately for the loss of value occurring each year in providing service. As a result of the reduction in the railway loan liability, interest and exchange will be reduced by approximately £1,268,000 per annum. This saving will, however, be offset to a large extent by the discontinuance of the Treasury recoups for losses on non-paying lines, freight reductions, &c.—the amount included in the revenue of the year under review was approximately £670,000—and by the obligation to contribute £118,000 annually to the National Debt Sinking Fund.

Apart from Treasury recoups there was the substantial increase of £397,764 in railway revenue. Country passenger business brought in £1,485,346, an increase of £75,982 or 5.39 per cent., with an advance of 9.30 per cent. in the number of passengers. Accelerated and improved train running and the reduced fares made operative in March 1936, have done much to bring about this satisfactory result. There was little change in the suburban passenger revenue of £2,321,512. Better economic conditions and the satisfactory wheat yield were the chief reasons for the improvement of £219,066 or 5.41 per cent. in goods earnings. The relatively low revenue (by comparison with the tonnage) in the case of general merchandise and butter was due to substantial concessions made in order to retain traffic. Many of the improvements in country passenger services have already been described in THE RAILWAY GAZETTE, including the extension of air-conditioning, the introduction of buffet cars, and the new Sydney Limited trains. A number of major improvements has also been effected in the country goods train services. With regard to train control, steady progress is being made with the preparations for the inauguration of the selector telephone system throughout the



suburban area. Suburban stations, signal-boxes, depots, &c., numbering 220 in all, will be linked directly with the main control system, and it will be possible to speak to all the points simultaneously. A graph printed in the report indicates the operating improvements which have ensued from the train control system, in conjunction with the provision of larger engines, locomotive and track improvements and automatic couplings. Some railway figures are given in the accompanying table:—

	1936-37	1935-36
Average miles .. ..	4,721	4,721
Train-miles .. ..	17,211,384	16,390,943
Net earnings per train-mile ..	3s. 4.11d.	3s. 5.49d.
Passenger journeys .. ..	141,343,253	139,539,089
Goods tonnage .. ..	6,115,298	5,762,418
Operating ratio, per cent. ..	71.62	70.76
Passenger revenue .. ..	3,806,858	3,713,411
Goods revenue .. ..	4,264,660	4,045,594
Total earnings .. ..	10,135,291	9,689,925
Working expenses .. ..	7,258,830	6,856,497
Net earnings .. ..	2,876,461	2,833,428
Capital expenditure .. ..	77,203,218	76,689,384

The Hallade track recorder has proved invaluable in revealing faults in the track. It has been an important factor in the higher standard of riding comfort on country lines, particularly those on which fast running schedules are in operation. A second recorder was obtained during the year, and is being used for testing the riding qualities of various classes of rolling stock. Many curves on main lines were realigned during the year. Six passenger mail motors were placed in service during the year. No new lines of railway were opened for traffic during the year, but traffic upon the 38-mile line Yarrawonga-Oaklands (New South Wales), is being conducted by the constructing authority pending the transfer of the line to the department.

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### Madras & Southern Mahratta Railway

RAILWAYS in this company's system include 2,779½ miles of company's and State lines, of which 1,119 miles are broad gauge and 1,660½ are metre gauge. Of the broad gauge lines 3¾ miles are quadruple track and 48¼ miles double track. In addition the company worked during the year ended March 31, 1937, 271½ miles of Mysore State lines, 51 miles (metre gauge) of the West of India Portuguese Railway, and a further 126½ miles belonging to Indian States and District Boards. Capital expenditure on State and company's lines during the year ended March last amounted to Rs. 3,84,004 or £28,800 only, track and rolling stock renewals accounting for most of it. In the year 1935-36 there was a serious setback in earnings, but in the year under review there was something of a revival and the gross earnings recovered to the level reached in 1934-35. Earnings are, however, considerably below those of years prior to 1932-33. Passenger traffic receipts have continued to fall in consequence of unregulated road competition. Reduced fares in sections where road competition is severe brought a small increase in the number of passengers travelling, but in spite of this coaching earnings were Rs. 7.77 lakhs less than in 1935-36. Prospects of improvement are, however, a little brighter. Diesel railcar services have been fairly successful, and the effect of other measures adopted to counteract road competition is becoming more noticeable. There has been a satisfactory improvement in goods earnings. Traffic in most of the important commodities was better and it was only in food grains and provisions that there was any marked falling off, due to the very low freight rates offered by the lorries, especially in the neighbourhood of the larger centres of

population. Some comparative figures are given in the accompanying table:—

	1936-37	1935-36
Mean mileage worked .. ..	3,235	3,237
Train-miles .. ..	14,120,301	13,191,163
Passengers .. ..	30,640,834	30,533,172
Paying goods, tons .. ..	4,818,380	4,557,058
Operating ratio, per cent. ..	60.2	61.8
Passenger receipts .. ..	Rs. lakhs 209.50	Rs. lakhs 216.43
Goods receipts .. ..	453.38	424.56
Gross earnings .. ..	747.37	731.03
Working expenses .. ..	449.86	451.47
Net earnings .. ..	297.51	279.56

Operating expenses (Rs. lakhs 168.71) show an increase of Rs. 3.01 lakhs due to larger coal consumption for the heavier traffic. Repairs and maintenance (Rs. lakhs 122.87) show a decrease of Rs. lakhs 13.49, but much of the variation is due only to a change of accounting procedure, certain expenditure under recent Government orders being booked to replacement and renewal instead of to repairs as hitherto. This change in procedure accounts in the main for the increase of Rs. lakhs 8.73 under replacement and renewal, although a rather heavier programme of renewal work was undertaken. The company's share of surplus profits from State and company's railways for the year 1936-37, less Indian income tax and supertax, amounted to Rs. 18,81,294, against Rs. 15,22,285 for 1935-36. Adding Rs. 53,149 surplus profits from the Mysore State Railway, as compared with Rs. 50,997 for the previous year, gives a total which realised £146,242, comparing with £119,004, for 1935-36. The total distribution to stockholders (including the 3½ per cent. guaranteed interest) will be 8½ per cent., as against 8 per cent. for 1935-36. Under the terms of the contract of 1908 for the working of the system the Secretary of State had the option of determining it on December 31, 1937, or on December 31 in any succeeding fifth year from that date. As a result of negotiations a new contract was finally executed on March 24, 1937, which will run for certain until December 31, 1945. The substance of it was given in THE RAILWAY GAZETTE of January 15, 1937, at page 94.

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### Jubilee of the Höllentalbahn

ONE of the many fascinating films produced by the Reichsbahn Film Service (to which we made reference last week) is one entitled "Elektrisierung der Höllentalbahn," or the electrification of the Höllental Railway. This was included in the group shown to a number of British railway officers at a private display of November 23, and it was particularly appropriate that it should have been selected for that occasion, as the present year marks the jubilee of the railway. The line is one of the most remarkable railway routes in Germany, and is, moreover, a route well known to the tourist for its scenic attractions. It was on May 23, 1887, that the first part of the Höllental line was opened, namely, the section between Freiburg (Breisgau) and Neustadt (Schwarzwald), a distance of about 35 km. (21½ miles). Although proposed long before, construction was not begun until 1884, partly on account of lack of money (Baden having overspent its financial resources on railway building in early years), and partly owing to the difficulties of the route. The line, which cost some 7 million marks, was designed by Robert Gerwig, the eminent engineer responsible for the Black Forest line, or Schwarzwaldbahn, a brief account of whose life appeared on page 788 of our issue of April 24, 1936. Numerous engineering works were necessary, including the important Ravenna gorge viaduct, 222 m. (243 yd.) long and 37 m. (121 ft.) high. Through connection to the Black Forest line was not completed



## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

## "Bradshaw"

51, Drayton Gardens, London, S.W.10  
November 25

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was interested in the letter of Mr. R. E. Charlewood in your issue of November 19 on *Bradshaw*. Many intending passengers must have found the standard companies' timetables difficult enough to read. It is sometimes almost impossible, without an intimate knowledge of the geography of the line, to tell through what stations a particular train actually passes, especially where there are alternative routes, as out of Marylebone. The compression of *Bradshaw* merely increases this difficulty.

Surely the times of the main train could be shown in heavy print and the times of the connecting trains from other stations off the route of the main train could be shown in ordinary light type. This would enable readers to see at a glance not only what is the route of the train by which they intend to start their journey and therefore whether or not their destination is on that route, but where and at what time they will have to change if their destination is off the path of the main train.

With the modern tendency to insist upon through trains it is important that the companies should make quite clear in their timetables those through facilities which are available. At present the list of through coaches is much easier to read than the list of through trains.

I am, Sir,

Yours truly,

P. G. HENDERSON

## Smokebox Vacuum and Exhaust Back-Pressure

R.M.S. Asturias,

Lisbon, November 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your comments on Mr. Webber's recent paper on "Boiler Proportions" before the Institution of Locomotive Engineers (THE RAILWAY GAZETTE, November 5, page 773) you refer to some remarks made by me regarding experiments on smokebox performance in a manner quite distinct from their actual contextual meaning. No suggestion whatever was made in my remarks to the effect that the trials carried out in 1936 on the Uruguay Railways were "empirical." These tests were for the purpose of ascertaining, in respect of that vital factor—"inches of smokebox vacuum per lb.—of back-pressure," (a) the optimum ratio to be aimed at, (b) the closeness to which such optimum could be approached in full size and under actual working conditions, and (c) what arrangement of smokebox and details would produce the best results on certain locomotives. (a) and (b) are matters of ascertainable fact when the proper apparatus is designed and applied—nothing empirical about them—and it is interesting to know that one of the home railway groups is at present conducting similar trials.

What is empirical, I agree (although not so mentioned in my remarks at the meeting), is (c), the smokebox arrangement, yet this is where I decidedly join issue with your assumption that the only worth-while advance in the elucidation of this extraordinarily complex matter has been made with models at Illinois—and be it noted that the variations in smokebox arrangements made there were no less empirical than in other experiments.

The Illinois tests with models are very useful as guides, but not very long experience of locomotives (and other prime movers) is needed to show that from the model stage a move into actual practice to ascertain the effect obtained in a number of service trials is indispensable before a decision on design can be arrived at. Further, such move into full size realities should be made at a sufficiently early stage, as other-

wise much work may be carried out on models and the like which on being translated into practical working may be found almost at once to be obsolete or inapplicable.

P. C. DEWHURST

Chief Mechanical Engineer, Central Uruguay Railway

## Main-Line Electrification

99, Clifton Road, S.E.25  
November 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The letter from Mr. Ashley Brown in your current issue affords one more instance of the misapprehensions which still exist on the subject of railway electrification, and which, apparently, it is impossible to dispel. Ever since its formation in 1923, the Southern Railway has published annual statements showing the comparative costs of steam and electric haulage in detail (Abstracts A, B, and C, page 8), and here is a digest of the figures for 1936 reduced to pence per train mile:—

HAULAGE COSTS IN PENCE PER TRAIN-MILE ON THE SOUTHERN RAILWAY DURING 1936

Running Costs	Steam	Electric
Wages connected with loco. running ..	10.89	1.938
Fuel or electricity .. .. .	8.01	7.288
Water, lubricants .. .. .	0.61	0.037
Stores and miscellaneous .. .. .	0.39	0.036
	19.90	9.299
Superintendence of locos. (estimated) ..	0.45	0.15
Maintenance: Locos. .. .. .	4.69	1.77
Electric track equipment ..		0.524
	25.04	11.743
Interest (estimated) at 3 per cent.* ..	1.43	3.821
	26.47	15.564

Net saving for 1936 .. 10.91d.  $\times$  30,150,586 train miles  
= £1,370,000.

\* Interest charges have been computed on an estimated capital expenditure of £16,000,000 for the electrified system and of £6,000,000 for steam equipment on a scale that would have allowed equal frequency of service. Probably this latter cost would have been swollen by heavy expenditure on enlargements of London termini to cope with the less mobile steam units.

A rate of 3 per cent. has been selected to show what the position would be if the Government's offer of cheap money had been available when the Southern Railway electrifications were carried out.

Yet in his book, "The Railway Problem," Mr. Ashley Brown asserts:—

"Even as regards suburban services the railways do not distinguish in their published accounts between the cost of electrically operated lines and lines worked by steam. In fact, the presumption that the electrification of suburban lines would show a substantial reduction in working costs, although reasonable, would be difficult to prove."

He now tells us:—

"As every railwayman who has studied the problem is well aware, electricity has nothing to offer our British railways apart from the advantages which it admittedly possesses when dealing with intensive suburban traffic. The thousands of miles of railway running through sparsely populated country districts will never be electrified while the railways remain under the control of responsible officers whose actions are submitted to the annual test of a balance sheet. If they are to be electrified under the aegis of the Ministry of Transport it will be the taxpayer who will provide the profits of the manufacturers of electrical plant."

Such comments reveal a superficiality that surpasses imagination.

There is a book on "Railway Electrification and Traffic Problems," for example, by the late Philip Burt who, as a lecturer on Transport at the London School of Economics



and one time Deputy General Manager of the North Eastern Railway, may be regarded as not unversed in railway lore. It would be possible to quote page after page from this book advocating wholesale electrification, not only in urban, but also in rural areas. However, the following illustration must suffice:—

"As the town dweller is anxious to get into the country, the rustic resident, perhaps even in a more marked degree, is desirous of enjoying the sights and sound of the town . . . This very general desire for better transport facilities is the opportunity of the railway companies. In the author's view, the requirements of the situation *can* and *should* be met by a wide-spread adoption of electric traction."

In addition, we might cite the findings of the Weir Report, to the effect that general electrification of the British railway system would yield a return of 7 per cent. on the capital expenditure, and the official estimates of the Chief Electrical Engineer of the L.N.E.R.—namely, 15.6 per cent. on the Manchester-Sheffield line and 10.2 per cent. between London and Peterborough, to give a couple of instances (Proceedings of the Institution of Civil Engineers, vol. 236, pages 57 and 76).

To be sure, Mr. Ashley Brown has himself advocated the electrification of suburban lines round London. But why stop short at the London area? A policy of general suburban electrification was strongly pressed on the railways by a wholly disinterested body such as the Royal Commission on Transport in 1931 (Final Report: The Co-ordination and Development of Transport, Cmd. 3751). To quote from paragraph 135, page 39:—

" . . . it would be greatly to the interests of the railway companies, and at the same time tend to the great convenience of the public, if all suburban services were electrified, not merely in the London area but in every district where there is intensive suburban passenger traffic."

Allowing zones of forty miles round London and twenty miles round Leicester, Nottingham, Sheffield, and Leeds, one finds that, according to the above-mentioned Commission, some 60 per cent. of the line from London to Carlisle is already ripe for conversion. When all this is borne in mind, the folly of leaving intervening sections unaltered will become at once apparent, and in a letter which you were so kind as to print in your issue for September 21, 1934, I pointed out further how a suitable policy of traffic concentration along certain selected routes would enable the major benefits of general electrification to be achieved within a fraction of the time and cost.

I may perhaps say that since the appearance of this letter I have had the privilege of discussing the suggestion with three railwaymen of high standing who have all agreed with me as to its complete feasibility. In an article appearing on April 18, 1936, *The Economist* referred to the matter in the following terms:—

"The plan, indeed, would be based on principles analogous to those of 'rationalisation' in industry. It would concentrate activity on sections of the existing 'plant' calculated to produce a maximum return. For this purpose, it would treat the railway lines of the country as a whole, ignoring such distinctions of current ownership as are mere anachronistic survivals of the pre-grouping epoch. It would honour the principle that a high density of traffic is essential to the optimum operation of an electrified line. From the viewpoint of capital cost, it would be decidedly economical, for it would involve the initial electrification of only 750 double track miles out of a total for the four chief railways of 19,267 route miles."

We commend our correspondent's suggestion to the railways, to transport users, to the Government—to all, in fact, who are concerned, in different ways with the objects it seeks to achieve.

To all this, Mr. Ashley Brown responds merely with the unsupported expressions of opinion I have quoted above. It is interesting to compare such an attitude with that of the railway directorates a century ago. In his book, "The British Railways," Mr. Newlands tells us how, when the L.N.W.R. was a trunk line operating from London to Birmingham and Liverpool and paying 10 per cent., the directors built out totally unremunerative branch lines to ward off competition—and the dividend fell to 5 per cent. Not to be outdone, the energetic directors of the North British Company, after refusing an offer of purchase on an 8 per cent. basis, set to work to follow the example of

the L.N.W.R. with such enthusiasm that in 1855 no dividend was paid and £100 of stock was selling for £29.

It is natural, no doubt, that the pendulum should have swung back from these extremes, but it is legitimate nevertheless, to ask whether it may not have swung back too far, and whether there is any reason, moreover, why it should be held back indefinitely.

Why, for instance, should Mr. Ashley Brown demur even to the possibility that electrification might be effected at national expense (not that he advances the slightest evidence that such a procedure would, in fact, entail any financial detriment to the State)? Most industries, apart from the railways, are the recipients of Government support in the shape of either subsidies or protective tariffs, and the possibility of State aid for the railways is one, surely, against which Mr. Ashley Brown need not protest either on principle or in the interests of the society he represents.

May I beseech you, Sir, if your patience is not already exhausted by the length of this letter, at some early date to publish an article giving all available information as to the comparative working costs of steam and electricity, together with particulars of the increments or losses of traffic that have occurred on electrified and non-electrified railways during the trade cycle now on the point of completion?

Yours faithfully,

K. H. JOHNSTON

### Naming of Locomotives

London, E.C., November 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—A unique and interesting event worthy of mention in your columns is that a new "A.4" class 4-6-2 type express locomotive has recently left the L.N.E.R. works at Doncaster bearing the number 4498 and the name *Sir Nigel Gresley*.

I am aware that on previous occasions locomotives have been given the names of railway chairmen, general managers, and directors, but I cannot recall any prior instance of an engine bearing the name of the chief mechanical engineer, the officer responsible for its design and construction, whilst the latter was still in office. Sir Nigel Gresley well merits this unique distinction.

There have, of course, been cases of locomotives being named after the C.M.E. of the railway, but unless I am mistaken, these names were posthumously conferred on each individual occasion, as a mark of respect to one who previously held office as head of the locomotive department.

Yours faithfully,

"A LOCOMOTIVE READER"

[Another instance is the naming of the new 4-4-4 type passenger engine of the Baltimore & Ohio Railway *George H. Emerson*. Mr. Emerson is the present Chief of Motive Power of that railway. Also we believe that the Metropolitan Railway 0-6-4 tank engine No. 96 was named *Charles Jones* after the then Locomotive Engineer who was responsible for its design and was still in office.—ED. R.G.]

### What Streamlining Weighs

1, Cumberland Terrace,

Regent's Park, N.W.1. November 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In a discussion on the merits and demerits of streamlining with one of the ablest of locomotive engineers in the States, he informed me that in a particularly successful class of locomotive which he had recently built, the sheathing and its supports, &c., weighed nearly 7 (short) tons. He added that had he been able to use this weight in an enlarged and improved design of boiler instead of in the sheathing, he was certain that he could have secured results in speed and efficiency that would have far exceeded the fine performance that the design was showing in service in its streamlined form.

Yours faithfully,

RICHARD E. PENNOYER

## PUBLICATIONS RECEIVED

**My Own Queer Country.** By John Gibbons. London: Methuen & Co. Ltd., 36, Essex Street, W.C.2. 8 in. x 5½ in. x 1¼ in. 311 pp. Illustrated by John Lewis. Price 10s. 6d. net.—This is probably the best book Mr. Gibbons has yet written. When any man has made something of an enviable name with books on foreign countries, one can be pretty sure that a book on his own will contain a good deal of rich meat, and this one bears out the theory. The author, who proclaims his great love of England and gets lyrical over Stokesay or Lincoln or Corfe Castle, while ignoring Bootle, the slums of Stoke and the blackness of Oldham, is surely no author at all. But John Gibbons does not funk the blackness of Oldham; he goes very fully into a sad place in County Durham, which is at the moment riding a prosperity bubble, likely to burst as soon as we are on better terms with our overseas neighbours; and still it is clear that he really loves England. There was a time when he had to conduct a party of amiable and well-meaning Americans round the country. They hired a huge and fast car, they saw all the "done" places, they stayed at all the expensive hotels, and consequently there was much that they did not see. Nevertheless, with J. G. as a courier, it is probable that they learnt far more than they would have done otherwise. He, however, would have shown them the salt, and even the castor oil of England, as well as the milk and the honey. He would have taken them round the back ways and given them a ride on the Kent and East Sussex Railway. And he begins his book by describing just how he would conduct such a tour, given the chance.

As might be expected, "My Own Queer Country" abounds in personal reminiscence, and being John Gibbons's personal reminiscence, it has a well-seasoned flavour. There is Cecil Rhodes ordering stout and champagne in the station bar at York in the middle of the night ("I had never before heard of an order so lordly"), and wild nights in pubs before the days of licensing hours, as men destined for South Africa took their last riotous refreshments, pursued by sundry ladies with bare-foot children in tow. There are living memories of the gilded, and sometimes bloodstained glory of the old music halls.

English railways receive their due, no less and no more than they deserve. Their qualities do not abound in superlatives, nor do their vices. "We have next to no *de luxe*, just a few all-Pullman trains creeping here and there into our timetables, but on even the ordinary train and in the almost universal third class the traveller for no tip at all will expect and get a civil word." That might be said of nowhere else in the world except perhaps of the Scandinavian countries. Not even in Scotland does the bus conductor say "thank you" automatically as he does in London. Our lines are compared

with those of America "with her democratic fiction of one-class railroads and then a reality of the bulk of the train being made up of luxury Pullmans at varying fares of magnificence and of one miserable 'day coach' deliberately constructed to be as uncomfortable as possible. . . ." Certainly, it is much easier to sleep in a thirty-year-old English third than in an American "coach" built a couple of months ago.

Various people notice various things. John Gibbons seems to have noticed them all. Few people except graduates and undergraduates of Oxford know the unprintable name of the last train down from Paddington, which is here tactfully rendered as the "Flying Biblical-Bad-Word."

To illustrate a book by John Gibbons, especially one of his best books, is something of a responsibility. We think the author was nearly as lucky in meeting John Lewis as Lewis Carroll was in meeting Tenniel. Some of those drawings are a great delight. Methuen, too, has made a beautiful job of the book as a whole, and it makes a happy companion on one's bookshelf.

**Model Railways.**—We have received from Bassett-Lowke Limited, the well-known firm of model builders of Northampton, a copy of a new catalogue of model railway accessories. Among the many innovations brought to notice in this profusely-illustrated publication is a series of railway stations and buildings called "Many Ways," which have been designed for use with the twin train table set introduced about two years ago. There are eight complete sets of these all graded and built up with 19 interchangeable units. Designed on the lines of modern railway station practice, they make up a splendid series of every type of building. Station figures and small platform accessories to exact scale have also made their appearance. Those interested in Continental railways will admire the Pacific type locomotive and also the full range of scale coaches, sleeping cars, wagons, and other interesting accessories. In the standard "0" gauge, which is still the most popular of all gauges, the *Enterprise*, claimed to be the only inexpensive steam locomotive of its kind on the market driven by steam, has been supplemented this season by the *Super Enterprise*, a 4-6-0 of bold and scale appearance, supplied in L.N.E.R., L.M.S.R., or Southern Railway colours. An inexpensive 0-4-0 tank locomotive of smart appearance and modest price makes a valuable asset for the shunting yard. The L.M.S.R. *Royal Scot* has been entirely remodelled and is now built on the semi-handmade principle. Smoke deflectors have been added and the model may now be classed as one of this firm's standard scale models. Welcome newcomers this season are the Coronation Scot and the Coronation expresses and the locomotive *Silver Link*. By improved methods of production considerable reductions have been

effected in the prices of less expensive standard lines. This catalogue may be obtained for 6d. from the Head Office, 16/20, St. Andrew's Street, Northampton; 112, High Holborn, London, W.C.1—or 28, Corporation Street, Manchester. An illustration of a realistic scene on a Bassett-Lowke model railway appears on page 988.

**Welding Electrodes.**—A new electrode known as the Gronex is described in a pamphlet which we have received from Murex Welding Processes Limited, Ferry Lane Works, Forest Road, London, E.17. It is of the Murex extruded type, embodying a special coating which provides efficient protection for the arc stream against atmospheric attack. In addition, the deposited metal cools quickly, without prejudice to its physical qualities; and metal losses due to splashing and volatilisation are reduced to a minimum. Various informative tables and diagrams are reproduced in the pamphlet, including a diagrammatic and tabulated guide to procedure for butt and fillet welds by the downhand method.

**Dover-Ostend Royal Mail Route.**—A leaflet accompanying the 1937/38 winter edition of the Dover-Ostend Royal Mail Route Handbook (issued by the Belgian Railways & Marine, 99, Regent Street, London, W.1) gives the timetable of the recently instituted new express service from Ostend to Poland and the Balkan States. The service outwards is in connection with the 2.0 p.m. Continental departure from Victoria, and gives arrival in Berlin the following morning, with extension to Cracow, Lwow, and Bucharest (reached at 4.40 p.m. on the second day), every Wednesday, Friday, and Sunday. Similar arrangements apply in the reverse direction. The handbook itself gives timetables of the connections from London *via* Dover and Ostend with Belgium, Holland, Scandinavia, Switzerland, Italy, and Central Europe; also lists of fares from London, and Dover.

**Stainless Steel in Locomotive Engineering.**—Public interest in the locomotives that work high-speed services is no doubt sustained by the extra attention usually paid to their appearance. To impart a smartness that can be easily maintained, stainless steel has obvious advantages, as was early given practical demonstration in its application to lettering, numbering, and certain fittings of the L.N.E.R. streamlined Pacific *Silver Fox*. The Martensitic (hardenable) stainless steels, however, have mechanical properties which suit them for such locomotive parts as safety valves, whistle valves, stop valves, injectors, and so on, in which positions it has the advantage of not being subject to erosion. These and other qualities, and mechanical or decorative applications of stainless steels in locomotive engineering are outlined in an illustrated booklet from Samuel Fox & Co. Ltd., Stocksbridge, near Sheffield, maker of Silver Fox stainless steel.

## THE SCRAP HEAP

Lady passenger objecting to man smoking in railway compartment: "I'll have you know that I'm one of the director's wives."

Smoker: "It makes no difference to me if you are his only wife."

\* \* \*

NOT MUCH LEFT!

The following railway story appeared the other day in the *Yorkshire Post*:—

An engine driver was off duty owing to illness, and when pay-day came round he asked his wife to call at the depot to collect his last week's wages. She was surprised when she saw the amount, and on reaching home mentioned that he had never told her what a good wage he got. He was ready for that. "Ah," he said, collaring the packet, "but what'll be left when I've paid t' fireman and t' guard?"

\* \* \*

Ten blocks of land—approximately 625,000 acres—have been opened up for mineral development in the districts of Thunder Bay and Kenora, Ontario. This land, the property of the Canadian National Railways, lies within 18 miles each side of the company's line running from Fort William in a north-westerly direction to Sioux Lookout and Hudson, the point of entry to the Red Lake gold fields. Important mining work is proceeding in adjacent territory, notably in the Obonga Lake and Sturgeon Lake areas to the east, and the Split Lake and North Pines area to the west.

\* \* \*

### MORE RAILWAY CATS

The notes which appeared in these columns on October 15 regarding G.W.R. cats at Paddington, has caused an historically-minded reader to tell us that in 1894 the men at the Midland engine shed, Buxton, made a great pet of a fine cat; on Monday, August 13 of that year, it being known that the cat had a family somewhere around, search was made. It was not until Wednesday afternoon that the kittens, five in number, were found in the trailing drag box, directly under the driver's footplate on goods engine No. 915. That day this engine had made a trip to Rowsley and back, 32 miles, besides shunting in the yard for several hours. The kittens were dry and warm, and as lively as could be. They were properly cared for and three were kept as pets.

\* \* \*

A curious hobby shared by Senor Azcarate, the Spanish Ambassador, and Mr. H. G. Wells is that of collecting pen-knives. A friend showed me a specimen the other day which would have delighted these connoisseurs, writes an evening newspaper columnist. It has served for many years as a railway season ticket. The knife has a silver handle, and a very small blade. On one side of the handle are the

words "Edinburgh and Northern Railway Director's Ticket." The other side shows a railway engine of primitive design. The owner showed the ticket at the barrier on a Scottish station a few weeks ago and the elderly ticket collector recognised it, saluted and said, "All right, sir." But the holder had an ordinary ticket as well, so the validity of the pen-knife was not fully tested.

\* \* \*

When I was a call-boy the company to me was the crew dispatcher, who told me what crews to call. When I became a crew dispatcher, the chief train dispatcher was the company. And along the upward course—through the positions of chief dispatcher, superintendent, general superintendent, general manager, vice-president—that has ended in the presidency, for a long time the man ahead of me was the company, until, as I assumed executive duties, the light began to filter through that the railroad business was more than the man ahead; that while the railroad I

was working for was my railroad, yet it was a part of a tremendous industry, and what affected the industry as a whole, affected in greater or lesser degree every part.—W. M. Jeffers, President, Union Pacific Railroad.

\* \* \*

The Durham railway station of Elvet embodies a reminder of the old Celtic character of that district. This is the "Elmet" of the Gododdin of Aneirin, which in modern Welsh has become "Elfed," sufficiently well known as the pseudonym of the former archdruid, who, however, takes his name from the parish of Cynwyl Elfed, in Carmarthenshire.—From the "Western Mail."

\* \* \*

In the autobiography of Sir John Ross, the eminent Irish Judge, there is a story of a railway passenger to Berlin who, unable to speak German, and wishing his baggage to remain undisturbed on the platform, said to the stationmaster, who quite understood, "Requiescat in pace"; when descending to the street for a short time, he said "Resurgam."



Mr. G. Freemantle, of our printers (Harrison & Sons Limited), has recently shown us an interesting mug found among some family relics, of which we reproduce four views. It depicts a Liverpool & Manchester train drawn by the locomotive "Fury" which went into service in August, 1831. The transfer is sepia and is hand-embellished with red, yellow, and blue



## OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

### CANADA

#### Fifty New-Type Air-Conditioned Coaches, C.N.R.

Two new air-conditioned coaches, the first of 50 which will soon go into regular service on Canadian National trains, have been delivered to the railway by the Canada Car & Foundry Co. Ltd., and are being exhibited for public inspection at Bonaventure station, Montreal, Toronto, Winnipeg, Vancouver and several other centres. The cars are built of light alloy steels and the seats, made to rotate and to be adjusted in three positions, are cushioned in Dunlopillo. Each car seats 64 passengers, 48 in the large and 16 in the smoking compartment, and the two compartments are separated by a glass partition. The wide windows, sealed tight to keep out dust, noise and draughts, are trimmed with aluminium; the "turtle-back" roofs; and the light green livery give these coaches a striking appearance as compared with the older style of passenger car. A new feature is the ladies' lounge, equipped with leather-covered sofa and wing mirrors.

#### Colour Schemes and Lighting

Three colour-schemes are used. One series of cars will have blue wainscotings with grey walls, and brown and grey floor and seat coverings. In another series, the wainscoting will be dark tan with walls of lighter tan, blending with black and brown floor-covering and green seats. The third scheme consists of a brown, beige, and blue floor with brown trimmings and blue seats. Ceilings in all cars are of cream. Parcel racks are of aluminium with satin brushed finish. Over every seat is installed a shadowless lens light at an angle to provide the greatest comfort in reading. Similar lights are set in the ceiling down the centre of the car. While the new lights are not glaring, they provide a much better illumination than the former type. Washing fixtures in the men's room and in the ladies' lounge are of porcelain. In the latter—some of which are finished in blue and some in green—the wash basin is recessed.

#### Details of Construction and Air-Conditioning

Longer than the older type cars, the new coaches are 82 ft. 5 in. over buffers; they are 6 in. wider, or practically 10 ft. over all. The structure is of Corten and Mantel alloyed steels, which has secured a reduction in the weight of the car body of approximately 13 tons without sacrificing strength or safety. The cars are equipped with six-wheel bogies, half of them having standard friction bearings and the other 25 Timken roller bearings. Delivery of all the cars is expected before the end of the year.

The ice system is used for cooling, and the iceboxes under the cars have a capacity of 6,000 lb. In winter, the cars, entirely air-conditioned, are heated by steam. A large tank, also under the car, provides drinking water which is forced by air pressure through coils to a drinking tank surrounded by ice. It will not be necessary to fill cars at stations *en route* and there is no direct contact between water and ice.

### UNITED STATES

#### Railways Seek Further 15 Per Cent. Rate Increase

The Interstate Commerce Commission has granted a part of the increases in freight rates sought by the railways on basic commodities, such as coal, ore, timber and other heavy traffic with which road competition is not a serious factor. These increases will total approximately £10,000,000 per annum, a figure far lower than the £27,000,000 increase in wage rates. The commission, however, in its decision virtually invited the railways to seek further increases. It conceded the need of the railways for larger revenues to enable them to attract the new capital necessary to maintain efficient service to the public. The railways have lost no time in responding to the opening afforded them to improve revenues, and have applied for authority to increase their freight rates, with few exceptions, by 15 per cent. It is believed that such increase, if granted, will not lead to material diversion of traffic to the road, because road hauliers (whose expenses—particularly wages—have also greatly increased during the present year) will likewise seek authorisation for an increase of 15 per cent. in rates.

#### Fare Increase of Doubtful Wisdom

In addition, the Eastern railways (but not those in the west and south) will ask permission to increase the fares for passenger travel in coaches from 1d. to 1½d. a mile. It is by no means certain, however, that this latter increase will be granted, nor are most railway traffic men convinced that, if authorised, it would actually increase earnings. It is true that bus operators would probably advance their rates proportionately, so no diversion of traffic in that direction would be suffered by an advance. But the principal competition the railways have to face for passenger travel is from the private automobile, and the operating costs per mile of such vehicles are on the decline rather than increasing. If two or more persons travel by car, even at the present railway rate of 1d. a mile, there is an out-of-pocket saving in motor travel (cost of car, garage, insurance and taxes not included. At 1½d. a mile for rail

travel, it will be cheaper for one passenger alone to travel in his motorcar rather than by train. A great many railway officers concede this fact, and, if the fare rise is insisted upon, such insistence will not be a consensus.

### INDIA

#### Great Railway Publicity Children's Excursion

On October 2 the B.B. & C.I.R. by joint arrangement with *The Times of India* organised a novel children's excursion, by the now-famous Flying Ranees week-end express [illustrated and described in our issue of June 25 last.—Ed. R.G.]. Bombay Central station was gaily decorated for the occasion, and both the full silver and pipe bands of the Bombay Police were in attendance. Some 6,000 people congregated to see the 1,300 children and their guardians off by the train, which had to be run in two parts. The first part went through to Surat and the second terminated at Bulsar. Most of the children returned from Surat the following day, but some of those who went only as far as Bulsar returned the same evening. Special fares were charged for children under 12, those for the 326-mile return trip to Surat being the equivalent of 7s. 8d. second and 2s. 7½d. third class.

The central feature and great draw of the excursion was Gutta Percha, the little elephant hero of many adventures recounted from time to time by "Aunt Peggy" in the *Junior's* Corner of *The Times of India*, who was present in person, and actually drove the first part of the train. Prior to the departure from Bombay, Mrs. Sethna read Aunt Peggy's message to the children, and both ladies were then presented with bouquets by Gutta Percha. Each of the 1,300 youngsters received a present of sweetmeats with his or her ticket, the gift of a firm in Surat. Ten prizes were also won by holders of lucky programmes. The first train loaded to 10 bogies, and the whole arrangements appear to have worked without a hitch, the B.B. & C.I.R. thus bringing off a great publicity coup. An illustration depicting Gutta Percha on the locomotive will be found on page 985.

### ARGENTINA

#### Institute of Transport (Argentine and River Plate Centre)

At a meeting of this centre held in Buenos Aires on October 5, a paper entitled "Power and Prosperity: Some characteristics of locomotive power and mechanical equipment, and their influence on railway prosperity," by Mr. P. L. Falconer, Locomotive Works Manager, Central Argentine Railway, was discussed. Mr. M. F. Ryan, C.B.E., General Manager of the Buenos Ayres Pacific Railway, presided. In the introduction, Mr. Falconer pointed out that the railway

no longer enjoyed the virtual monopoly that characterised its development in the past century. In speed it had given place to aerial transport, in flexibility and individual convenience to the road vehicle, but in the guiding characteristic of the rail which enabled a heavy train to be handled with a minimum of labour, in the heavy wheel loads, low tractive resistance, good grading, efficient signalling and freedom from weather restrictions, the railway still possessed a transport capacity and a degree of safety unequalled by any other form of inland transport. After referring to some of the difficulties of motor lorry transport such as the short life of tyres, the cost of labour, and the problems of parking space, the lecturer said that, in the movement of heavy traffic over considerable distances, it was difficult to conceive how, under equal conditions, any other form of transport could compete economically with the railway. But there was a minimum distance below which the disproportion between hauling and terminal charges favoured the road vehicle; a speed below which canal or river transport might economically compete, and a tonnage below which both aerial and road transport might give better service. The prosperity of the railway, the lecturer remarked, depended mainly on its ability to exploit economically the range of transport that yet belonged to it, and to recognise clearly the competitive boundaries beyond which it was uneconomical to operate, pushing them back as far as possible by a steady improvement in its material, operating and commercial conditions.

In addition to the Chairman, the following took part in the discussion: Major R. K. Hubbard, O.B.E., Messrs. C. Case, E. I. R. Bonner, E. A. Richards, R. Flack, and R. Woolmington.

## SWITZERLAND

### Winter Sports Arrangements

Advance information regarding bookings for the Swiss winter resorts indicates that a record season may be expected if conditions are suitable, and the principal mountain railways concerned have made arrangements for dealing with a considerable amount of traffic. The famous Davos-Parsenn cable railway, in particular, will be reopened on December 4 with doubled capacity, due to the use of two-car trains instead of single cars as hitherto, and will be able to carry 700 passengers an hour. On the Rhaetian Railway system, the handling of heavy traffic between Klosters and Davos will be greatly facilitated by the use of the new crossing station at Wolfgang, which was recently opened. The newly-electrified Vitznau-Rigi line will remain open throughout the winter as far as Staffelhöhe, and the Brig-Visp-Zermatt and Martigny-Châtellard Railways, which were formerly closed during several months of the year, will also

work without interruption, thanks to the protection works now completed. The use of the rotary snow-plough, described and illustrated in the March 5 and May 7 issues of *THE RAILWAY GAZETTE*, will enable the Jungfrau Railway to maintain a winter service over its whole length. In western Switzerland, the Villars-Bretaye electric rack railway is being extended to the Col de Bretaye.

### New Lines and Sledgeways

New lines which will be popular with winter sports enthusiasts are the aerial ropeways from Adelboden to Engstligenalp (opened on September 12 last), and from Kandersteg to Ueschinental, whence one of the now numerous trackless cable lines, with large sledges in lieu of cars, will lead to the skiing slopes above. Some other sledgeways, existing or shortly to be opened, are: Gstaad-Windspielen (the first of its kind, opened in 1935); Corviglia-Piz Nair; Lenk-Bettelberg-Mülkerplatte; Wildhaus-Freienalp; Col de Bretaye-Chamossaire; and Lenzerheide-Tgantien.

Another popular mode of transport is the ski-lift, consisting of an endless cable carried on overhead standards, by which skiers are hauled up the slopes. There are several systems, the variations being mainly in the type of grip or seat, which is slung from the cable at regular intervals. Since the pioneer ski-lift was opened at Davos in the 1934-35 season, its success has induced one resort after another to instal similar lines, and some 15 will be in operation this winter. Among these may be mentioned the new Schatzalp-Strela lift, above Davos; the Suvretta lift at St. Moritz (which is being lengthened); and new lifts at Mürren, Andermatt, and Klosters.

The usual large number of through winter sports trains—both ordinary and special in connection with the various tourist agencies—are being run from London, and seem likely to be better patronised than ever before.

## ALGERIA

### Railway Finances

According to the Report on Economic and Commercial Conditions in Algeria, just issued by the Department of Overseas Trade, the Algerian Railways are showing profits, after several years of loss, and the increased receipts are illustrative of improved conditions throughout the country. There are in all 3,000 miles of railways in Algeria. To the west there is railway connection with Morocco through Oran and Oujda, while to the east Tunis is reached through Constantine. The earnings of the whole system in 1936 compared with the preceding year are as follow:—

	1936 fr.	1935 fr.
Passenger receipts	73,318,000	65,935,000
Goods receipts	161,859,000	160,758,000
Total receipts	235,177,000	226,693,000

For the four months January-April, 1937, provisional figures show that the increase in receipts has continued into the present year.

## POLAND AND JUGOSLAVIA

### Installation of Kofler Train Stop on Polish State Railways

It is announced that work has begun on the installation of the Kofler automatic mechanical train stop apparatus on the Tluszcz-Ostrolenka section of the State Railways, as sanctioned by the Ministry of Transport in June last. The section is 74 km. (46 miles) long, and all steam locomotives running on it will be equipped. This apparatus is the invention of an Austrian engineer, Herr George Kofler, and is of extremely simple construction. Trials with it have already been made on the Isar Valley and Cologne-Bonn electric lines in Germany and the electrified North Milan Railway in Italy, but the present installation is much the longest so far put down. Descriptions of the working appeared in *THE RAILWAY GAZETTE* for August 26, 1932, and *The Railway Engineer* for November, 1932, and September, 1933.

### The Mechanism Described

The trip-arm mechanism actuated by the signal beside the line comes in contact with an operating element, of special shape and construction, on the train, designed to work with the minimum of shock, and actuating the brake-setting or warning apparatus as the case may be. The trip arm itself, mounted above the loading gauge, is of novel design and includes an automatic unlocking mechanism which causes it to move entirely clear of the path of the train apparatus as soon as the latter has been acted on, thus eliminating risk of damage from any obstruction, such as out of gauge load. The trip arm is restored to its correct position on the next operation of the signal to "danger."

### Electric Cab Control

The inventor has added to his original all-mechanical device an electric cab control working in conjunction with the warning hooter, the brake-setting valve, and a vigilance resetting button. Lamp signals showing the normal and operated condition of the mechanism are used, and also a slow-acting relay controlling the brake action and giving time for a driver to actuate the vigilance button when an adverse signal is encountered. Trials over such a long section should prove very useful in establishing the suitability of mechanical trip mechanisms for general service.

### The Apparatus in Yugoslavia

It may be noted that the State Railways of Yugoslavia also are to make a trial of the Kofler apparatus between Resnik and Rypnia, on the Belgrade-Nisch line.

## BRITISH RAILWAY STATISTICS

"The Railway Gazette" monthly table for August, 1937, as compared with August, 1936, compiled from the Ministry of Transport Statement No. 213

Description	Great Britain*	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.
<b>PASSENGER TRAIN TRAFFIC—</b>					
Number of pass. journeys (ex. season ticket holders)	124,867,864	11,200,718	21,954,875	32,456,787	22,130,961
Increase (+) or decrease (—)	+ 167,921	— 174,843	— 111,166	— 36,380	+ 156,527
Passenger receipts (excluding season ticket holders)	£7,376,122	£1,067,802	£1,603,781	£2,470,549	£1,605,592
Increase (+) or decrease (—)	— £70,055	— £44,975	— £19,730	— £36,905	+ £32,463
Season ticket receipts	£925,928	£56,109	£174,937	£246,245	£308,783
Increase (+) or decrease (—)	+ £35,849	+ £1,435	+ £5,427	+ £2,152	+ £21,816
Parcels and misc. traffic receipts (excluding parcels post)	£1,041,662	£196,450	£309,204	£388,718	£129,137
Increase (+) or decrease (—)	+ £8,051	+ £7,290	— £3,849	+ £12,682	— £7,582
<b>FREIGHT TRAIN TRAFFIC—</b>					
Freight traffic (tons) (excluding free-hauled)	22,543,350	5,706,728	10,351,166	10,391,058	1,245,799
Increase (+) or decrease (—)	+ 1,465,297	+ 685,939	+ 619,810	+ 424,441	— 54,975
Net ton-miles (excluding free-hauled)	1,320,956,200	254,649,875	443,657,203	534,001,597	55,482,516
Increase (+) or decrease (—)	+ 65,071,900	+ 21,745,883	+ 26,220,111	+ 16,654,233	+ 1,295,495
Average length of haul (miles) (excluding free-hauled)	58.60	44.62	42.85	51.39	44.54
Increase (+) or decrease (—)	— 0.98	— 1.77	— 0.05	— 0.52	+ 2.88
Freight traffic receipts	£7,076,526	£1,276,000	£2,294,147	£2,913,000	£380,076
Increase (+) or decrease (—)	+ £271,529	+ £103,700	+ £110,147	+ £63,000	+ £163
Receipts per ton-mile	1.286d.	1.20d.	1.24d.	1.31d.	1.64d.
Increase (+) or decrease (—)	— 0.014d.	— 0.01d.	— 0.02d.	— 0.01d.	— 0.04d.
Freight train-loads. Average train-load (tons)	128.94	139.19	132.79	125.79	106.52
Increase (+) or decrease (—)	+ 2.72	+ 5.29	+ 2.52	+ 1.40	+ 2.57
Net ton-miles—					
Per train engine-hour	983.09	1,058.15	1,028.61	943.94	818.17
Increase (+) or decrease (—)	— 20.50	— 10.56	— 8.22	— 41.78	+ 33.36
Per shunting-hour	905.35	824.84	984.09	952.12	598.97
Per total engine-hour	471.31	463.52	502.93	474.01	345.81
Net ton-miles per route-mile per working day	2,907	2,982	3,088	3,409	1,184
Increase (+) or decrease (—)	+ 151	+ 258	+ 179	+ 138	+ 14
Wagon-miles. Total	372,727,888	68,297,874	130,971,566	155,128,256	17,727,844
Increase (+) or decrease (—)	+ 4,628,758	+ 2,972,905	+ 3,892,394	+ 39,156	— 582,525
Percentage of loaded to total	67.52	69.34	64.72	69.09	67.59
Wagons per train. Total	34.28	34.69	34.80	34.09	31.96
Increase (+) or decrease (—)	— 0.58	— 0.17	— 0.60	— 0.79	— 0.70
Loaded	23.15	24.05	22.53	23.55	21.64
Empty	11.13	10.64	12.27	10.54	10.32
Train-miles. Coaching—Per train-hour	15.32	14.47	14.57	14.56	18.08
Per engine-hour	12.15	11.35	11.17	11.07	15.02
Train-miles. Freight—Per train-hour	8.96	9.23	9.08	8.74	9.31
Per engine-hour	3.66	3.35	3.84	3.76	3.20
Engine miles. Total	51,666,248	8,222,450	14,472,316	19,196,122	6,928,948
Increase (+) or decrease (—)	+ 1,300,168	+ 255,155	+ 560,672	+ 431,048	+ 200,169
Mileage run by engines. Total train-miles—					
Coaching	26,962,891	3,685,564	6,454,733	8,891,621	5,261,392
Freight	10,874,344	1,968,977	3,763,058	4,554,090	554,675
Engine-hours in traffic. Total	5,398,481	938,253	1,631,705	2,096,374	542,188
Increase (+) or decrease (—)	+ 199,605	+ 48,267	+ 80,932	+ 83,499	+ 950
Shunting miles per 100 train-miles—					
Coaching	7.02	6.85	6.47	7.45	7.15
Freight	70.73	83.95	66.19	64.67	93.01

Passenger Traffic Statistics: Number of journeys, receipts, and receipts per journey (excluding season ticket holders)—August, 1937

Subject	Great Britain	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.	Cheshire Lines	Liverpool Overhead	L.P.T.B.†	Mersey
<b>Full fares—</b>									
Pass. journeys	31,210,083	875,551	1,369,982	1,761,035	3,260,498	19,449	183,421	22,709,149	83,081
Gross receipts	£1,178,794	£118,547	£204,573	£183,366	£323,491	£3,650	£1,849	£321,991	£1,498
Receipts per pass.	9.06d.	32.50d.	35.84d.	24.99d.	23.81d.	45.04d.	2.42d.	3.40d.	4.33d.
<b>Reduced fares—</b>									
Excursion and week-end—									
Pass. journeys	62,798,024	7,861,170	15,536,593	22,610,713	12,203,807	668,487	226,416	1,605,096	743,430
Gross receipts	£5,216,672	£818,365	£1,200,383	£2,003,291	£1,020,366	£55,488	£2,695	£40,020	£12,727
Receipts per pass. journey	19.94d.	24.98d.	18.54d.	21.26d.	20.07d.	19.92d.	2.86d.	5.98d.	4.11d.
<b>Workmen—</b>									
Pass. journeys	24,958,535	1,609,071	3,405,565	6,606,690	5,398,496	253,272	210,090	6,429,788	198,934
Gross receipts	£371,375	£24,515	£56,515	£108,402	£91,063	£4,446	£1,691	£72,505	£1,798
Receipts per pass. journey	3.57d.	3.66d.	3.98d.	3.94d.	4.05d.	4.21d.	1.93d.	2.71d.	2.47d.
<b>Other—</b>									
Pass. journeys	5,807,275	831,268	1,613,191	1,444,358	1,262,312	43,821	44,674	418,788	19,231
Gross receipts	£510,067	£78,705	£119,318	£134,703	£163,883	£3,223	£289	£3,752	£293
Receipts per pass. journey	21.08d.	22.72d.	17.75d.	22.38d.	31.16d.	17.65d.	1.55d.	2.15d.	3.66d.
<b>Total—</b>									
Pass. journeys	124,867,864	11,200,718	21,954,875	32,456,787	22,130,961	985,401	664,601	31,162,821	1,044,680
Gross receipts	£7,376,122	£1,067,802	£1,603,781	£2,470,549	£1,605,592	£67,179	£6,524	£438,268	£16,318
Receipts per pass.	14.18d.	22.88d.	17.53d.	18.27d.	17.41d.	16.36d.	2.36d.	3.38d.	3.75d.

\* All standard gauge railways

† Includes passengers originating on the railway undertakings, and on the Whitechapel and Bow Joint Railway



## TACHEOMETRIC SURVEYING IN THE RAILWAY YARD

*A novel method eliminating both the use of a chain or tape and the usual tacheometric fractional angles and lineal distances which are accurate only to the nearest foot*

IN making surveys of sidings and connections for improvements and re-alignments the writer has always been shy of the tacheometer. Though the field work is reasonably quick, the plotting of a number of fractional angles on the plan is laborious and the linear distances are only accurate to within one foot (using the ordinary 100:1 stadia) which is insufficiently accurate when clearances between tracks and structures are involved. Chain surveying, although it gives the requisite accuracy and is easy to plot, is cumbersome where busy tracks have to be crossed with the tape and requires three chainmen if the work is to be done quickly (two on the main tape and one for offsets).

The following method has been devised to make the best of both systems, in that the surveyor remains at his instrument, no tape need be laid across the running lines and yet the plotting in the office is done exactly as for

a chain survey. First of all a theodolite is adapted by rotating the diaphragm through 90° making the stadia wires vertical. This does not spoil the instrument for other work but enables stadia readings to be taken on a horizontal staff (an arrangement sometimes found in mining theodolites). The field work is pegged out as for a chain survey with the intended chain lines running roughly parallel to the tracks. The theodolite is set up over a peg and directed on to the next peg. The base of a levelling staff is held in turn to each object it is desired to plot, the horizontal circles of the theodolite being clamped, the staff lying horizontally across the collimation line and as nearly at right angles to it as the chainman can judge. The three wires are read and logged, the stadia readings giving the distance from the peg, and the collimation giving the offset distance, to be plotted exactly as from a chain surveyor. This may be continued for about 300 feet, depending on the power of the telescope, after which the instrument may be transitted or turned to another line and a further series of offsets taken before shifting it to another peg. To follow curving tracks the instrument may be turned, either through a definite number of degrees and checked by reading an offset from the original line, or *vice versa*. A note must, of course, be made of each change of direction. This feature is one of the definite advantages which tacheometry has over chaining, but in this case it can be used without the labour of setting a vernier protractor for each of a series of points. Furthermore no tape need be placed across the tracks, an advantage where there are live rails or frequent traffic.

The method is not without drawbacks. Although the offset is measured with great accuracy (0.1 foot) from a chain line, which is optically straight, the longitudinal chainage is only approximate to the nearest foot. Except for very intricate layouts, however, which should be

383}	Heel	4.59	4.24	84		
466}			4.42	134		{376 509
			4.19 <sup>N</sup>	140		
349}				145(?)		
488}				170	Sighting C'	{210 379
1.36	X <sup>N.5</sup>		0.64	6.2'		
-	X <sup>S.1.7</sup>			7		
				360°		
203}	Peg C	6.57		167	4.53	
369}				143	4.65	
537}		5.68		81	0.84	{125 045
395}				83	4.08	4.43
484}		2.78		72	3.77	T <sub>0.7</sub>
402}				56	3.28	
413}		1.96		37	1.85	3.08
342}				29	2.93	X <sup>N.9</sup> 1.1.7 {307 279
356}		0.42				
301}						
203}						
167}						
					1.02"	2.8"
					↑ East	
					[B]	

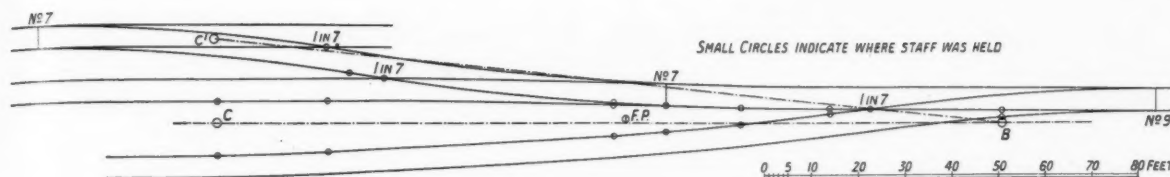
### EXPLANATION OF SPECIMEN FIELD-BOOK PAGE AND SURVEY THERE RECORDED

The theodolite was set up over Peg B, clamped at 360 deg. and directed on Peg C. (BC was part of a long survey line running east and west through the station.) The distances from B to the nearest running edges were measured by rod and recorded as 1 ft. 0½ in. and 2 ft. 8 in. respectively. The staff was held at the nose of No. 9 crossing and the middle wire read 2.93, the offset distance, and the stadia wires read 3.07 and 2.79, logged together in a bracket at the side of the page. Later on, in the office, the stadia readings were reduced and entered in the centre column.

The chainman then proceeded to hold the staff to various points as directed, taking as many at each stadia reading as were within reach. E.g., at 83 ft. from the instrument he has held to the rail farthest to the right (offset 4.43) where the stadia have been read as 4.84 and 4.02 and has then slid the staff to the next rail (offset 4.08). He then reversed it to reach a rail on the left of collimation (offset 2.78).

After thus reaching Peg C, the telescope was turned onto C', which had been previously set in by tape from C. The angle (6 deg. 2 min.) was read as a check. The chainman now worked back towards the surveyor locating points along the crossover road. Note that at 145 ft. only one of the stadia could be read and the distance had to be estimated by taking 0.64 from 1.36 and doubling, then adding in 1 ft. as the instrument constant. The "N" against the 4.19 offset at 140 ft. means that it is the northern rail of a pair.

Specimen page from field book with explanation on the right



Part of survey by tacheometer

checked with a tape, this is no disadvantage. Is it not permissible to alter a switch lead by as much as a foot in order to avoid an awkward closure? The error, which is not cumulative, does not therefore invalidate the usefulness of the plan so far as track is concerned. But the survey lines must be kept fairly parallel to the tracks.

In actual practice it was found that the ordinary levelling staff was too slow to read, mental arithmetic being required at each wire, becoming very confusing when the staff is held alternately left and right. The scale shown in the photograph was made by ruling with Indian ink on cartridge paper, mounted with photo paste, sized and varnished. With a little practice it can be read at sight. This staff has also proved useful for ordinary levelling but

it cannot be read so easily as the plain type at a long distance; the footage figures are in red and the tenths in black. Notice the projecting steel sole plate which can be hooked over the rail in cases where the running edge is remote from the sight line. As the plate is only  $\frac{1}{2}$  in. thick it may be neglected. The chainman, before carrying the staff ahead, should be instructed as to how often he is to hold the staff against the rails, e.g., "at every joint," "joints and middles," &c., as may be required by the scale of the intended plan. Toes and heels of switches, noses of crossings, fouling marks and structures should be included, with special instruction when holding against a rail always to use the running side. A specimen page of the field book, somewhat abridged, with explanatory notes and the portion of a survey to which it refers are reproduced.

The worst error liable to creep in is from not holding the staff at right angles to collimation, a point very difficult to supervise. With the staff held 15 deg. out of square the error in a 10-ft. offset is 0.35 ft. (4 in.) It is therefore important to keep the offsets reasonably small, to employ an intelligent chainman and to keep the line of sight fairly well parallel to the tracks (by which he will unconsciously set his staff). Where there are three or more tracks it may be best to run parallel sight lines about 20 ft. apart. The setting up of a theodolite for this kind of work, where slight errors of centring and levelling are permissible, is surprisingly quick, even with a four screw base.

The writer is indebted to "R. D. G." for the articles on Railway Surveying which appeared in *The Railway Engineer* of September and October, 1934, and to which reference should be made, particularly to the system of field notation therein described. The writer would be very interested to compare notes with engineers who have devised tacheometric methods similar to the one now described.

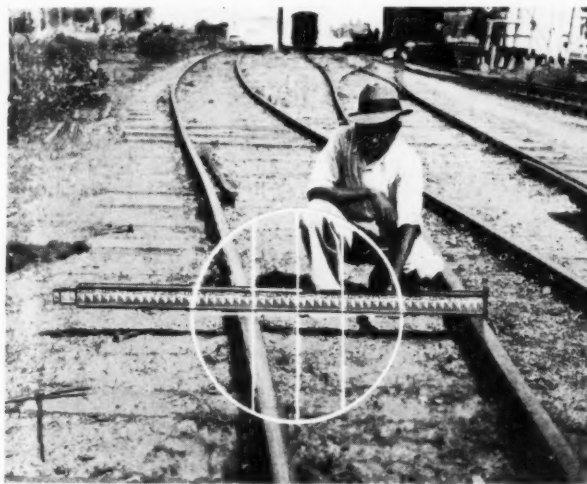


Illustration showing how the staff is held

### Canadian Railway Pioneers

An early chapter in Canadian railway history is recalled by a biographical sketch on Captain John Palliser, in *The Beaver*, the quarterly magazine of the Hudson's Bay Company. John Palliser, elder brother of Sir William Palliser, the famous ordnance inventor, was born in County Waterford on January 29, 1807. In 1857 he was placed by the Imperial Government in charge of an expedition to explore the Canadian prairies and Rockies, to determine whether it would be possible to build a railway through the mountains to the coast. Palliser had already travelled widely in North America, and in 1859 he published an account of his earlier journeys in "The Solitary Hunter." In the same year, and after his Canadian explorations, he was awarded the gold medal of the Royal Geographical Society. Rather curiously, while the Kicking Horse Pass was discovered during the course of the expedition, it is not referred to as having any merits either for a railway or a wagon road. In 1877 he was awarded the Companionship of St. Michael and St. George, and died unmarried on August 8, 1887. Palliser's report on the feasibility of constructing

a British transcontinental railway was to the effect that "the knowledge of the country on the whole would never lead me to advocate a line of communication from Canada across the continent to the Pacific exclusively through British territory. The time has now for ever gone by for effecting such an object, and the unfortunate choice of an astronomical boundary line has completely isolated the Central American possession of Great Britain from Canada in the east, and also almost debarred them from any eligible access from the Pacific coast on the west." Eleven years before Palliser wrote the above words Joseph Howe gave his famous address on railways and colonisation. He was dealing with a proposed railway from Nova Scotia to Upper Canada but his imagination envisaged an all-British line to the Pacific. Such a conception was one "which the imagination of a poet could not exaggerate but which the statesman may grasp and realise even in our own day." He predicted that "many in this room will live to hear the whistle of the steam engine in the passes of the Rocky Mountains and to make the journey from Halifax to the Pacific in five or six days."

## MODIFICATIONS AT CAIRO STATION, EGYPTIAN STATE RAILWAYS

### Re-arrangement of signalling

(See illustrations on facing page)

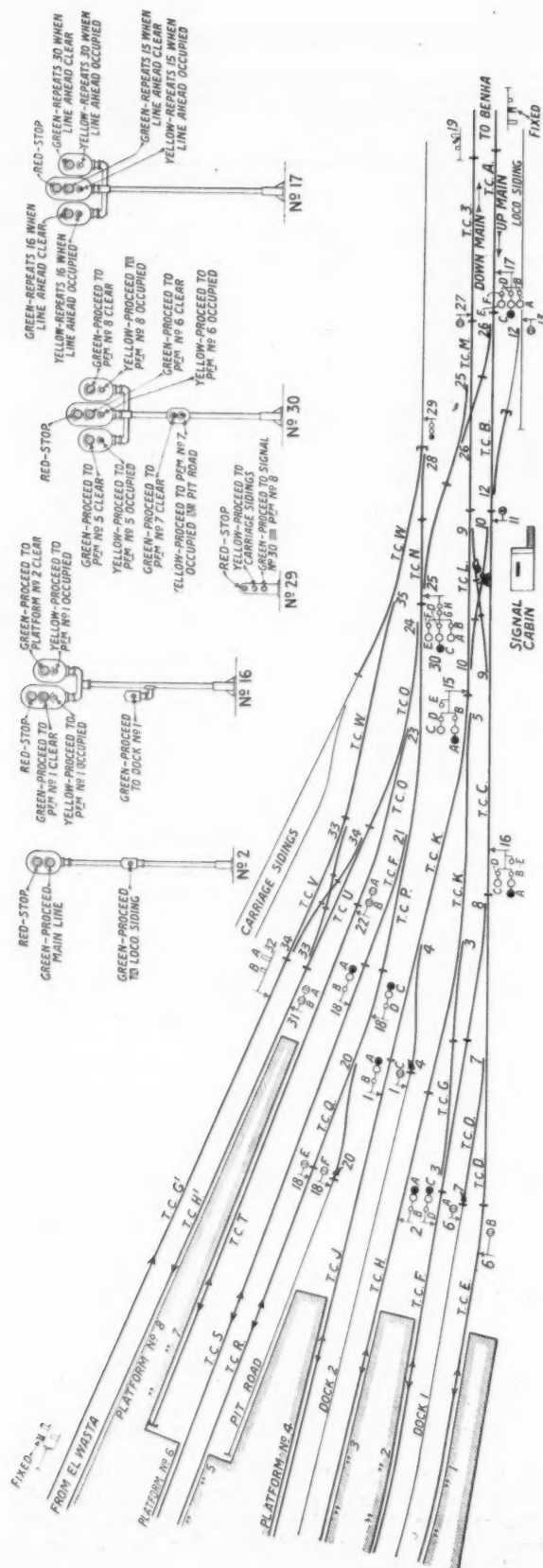
**M**ODIFICATIONS in the track layout at Cairo station on the Egyptian State Railways have necessitated alterations to the signalling, and Cabin No. 2 has accordingly been reconstructed and brought up to date. Electro-pneumatic signalling has been in use here since 1905, when McKenzie & Holland equipped 3 cabins containing 93 levers in all, of which 8 were spare. The new installation is also electro-pneumatic, but colour-light signals have replaced the old semaphores. The indications, as will be seen from the signalling diagram, present some novel features, only one red light being provided at the splitting signals to indicate "stop." The locking frame, Fig. 2, contains 35 levers (1 spare), with electrical interlocking, working 50 signals, 19 facing points, 17 trailing points, and 3 derailleurs. Selection has been extensively used, only 16 levers being used to control the 50 signals.

The standard three-wire three-position block is used for controlling movements outside the station limits, within which complete track circuit protection is provided, giving signal, point and route locking in the latest manner. The condition of each section is indicated on the track diagram by two spot lights, normally lighted. The signal indications and positions of the points are repeated behind the levers by lamp indicators. The use of selection has enabled the frame to be kept to modest dimensions, but the interlocking and other circuits are slightly more complicated in consequence. About 2,500 circuits are involved, and, as Fig. 1 shows, lever No. 30 controls nine distinct signal indications, according to the position of the points, signals and track circuits in advance. The light signals can be seen clearly at a distance of over 760 yd. in the brightest sunlight.

The Westinghouse Brake & Signal Co. Ltd., of London and Chippenham, supplied the equipment, except the block apparatus, which was made by the W. R. Sykes Interlocking Signal Co. Ltd.

### Stresses in Continuous Rail

Mr. H. S. Clarke, Engineer, Maintenance of Way, Delaware & Hudson Railroad, contributed a paper to the 52nd Annual Convention of the Roadmasters and Maintenance of Way Association at Chicago on September 14-16, in which he referred to experiments conducted some years ago with a 500-ft. length of continuous welded rail. It was found that over a range of temperature between minus and plus 20° F. the length of the rail was not changed, no movement being observed, but above 20° F. the rail became sensitive to temperature changes. As Mr. Clarke pointed out, this fact has a bearing on the ideal temperature for fixing continuous rail. Where a rail is so fixed that it cannot expand when heated, a compressive stress is set up internally and if the rail cools below the temperature at which it was fixed a tensile stress is created. These stresses are so far below the elastic limit of the rail itself that, as Mr. Clarke says, they can be neglected. It is important, however, that the fixing of the rail should be such as to prevent expansion under temperature rise. Mr. Clarke mentioned that in his experience the raising of track in surfacing had not given rise to any difficulty in holding it in line.





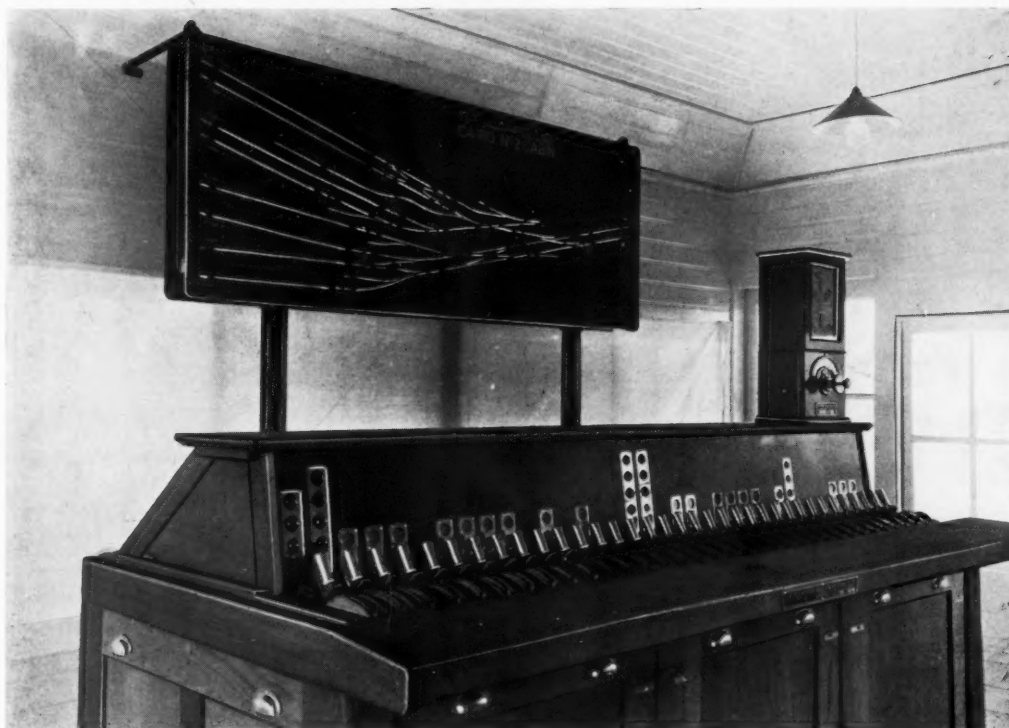


Fig. 2—(above): Interior of cabin showing power frame, illuminated diagram, and block instrument



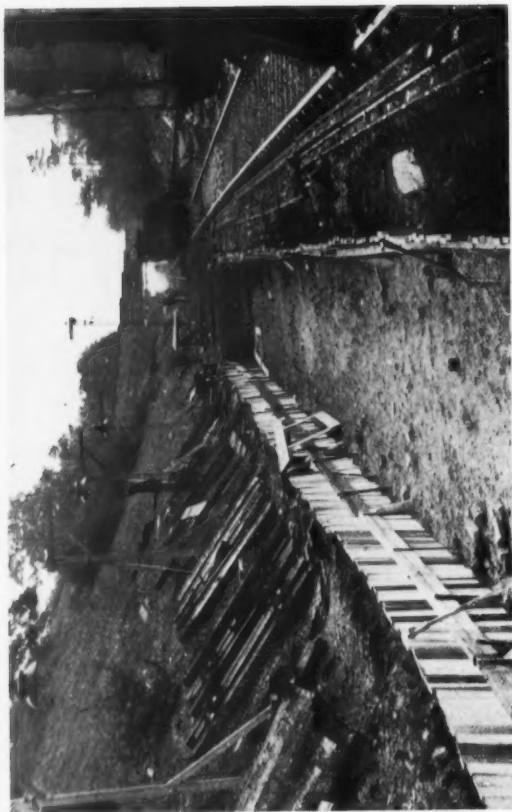
Fig. 2—(right): Interior of relay cabinet, Cairo No. 2 cabin

**MODIFICATIONS AT CAIRO STATION,  
EGYPTIAN STATE RAILWAYS**

(See article on opposite page)



Left: Excavator in front throwing out old roadbed; powdered stone and pre-cast concrete slabs are left by digger as left by digger after being trimmed by hand. Note the arrangements for lighting



Right: Excavation as left by digger after being



Pre-cast concrete slabs laid with old rails on them, and powdered stone being placed over them



The new roadbed seen in relation to the track

#### STRENGTHENING OF ROADBED ON SOUTHERN RAILWAY MAIN LINE

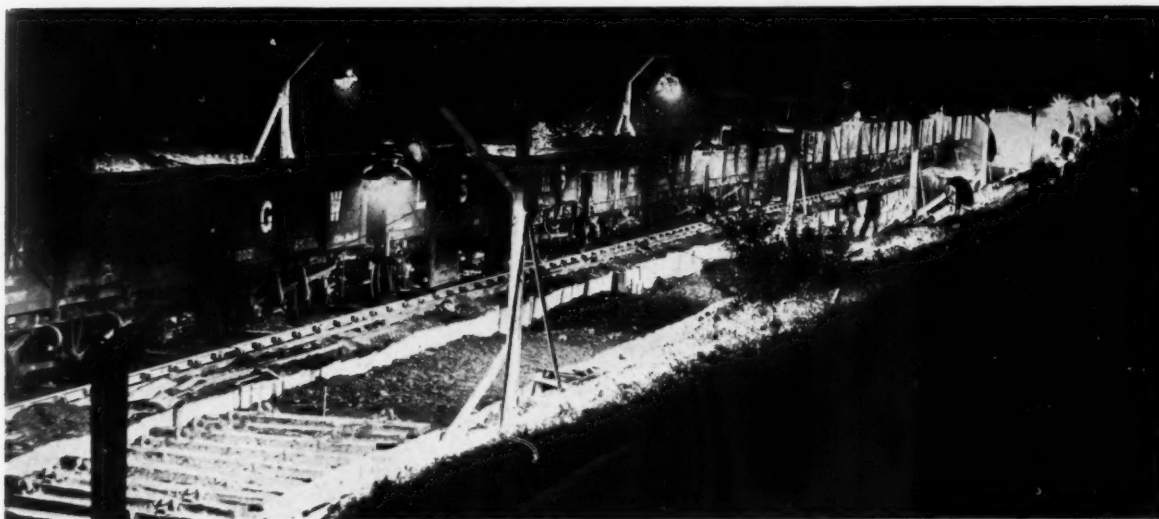
## STRENGTHENING OF ROADBED ON CLAY FORMATION FOR MAIN LINE TRAFFIC

*A notable enterprise of the Southern Railway at Hildenborough*

AS a general rule the original roadbeds of main lines suffice to carry present-day main-line traffic when strengthened up by the addition of modern stone ballast of adequate depth with a properly designed permanent way drainage system where required. In certain cases, however, where the nature of the soil is particularly soft, additional measures are desirable.

An instance occurs on the Southern Railway main line

are laid longitudinally, as shown in the cross section. The slabs are given a cross fall of 1 in 48 towards the cess drain, and the whole is then covered with more powdered rock sufficient to cover the scrap rails to a minimum depth of 1 in. A layer of fine ashes is placed on the top of this and the track replaced, and when the whole is fully consolidated the permanent way will be lifted on to 6 in. of stone ballast of standard grade.



*General view of the work at night*

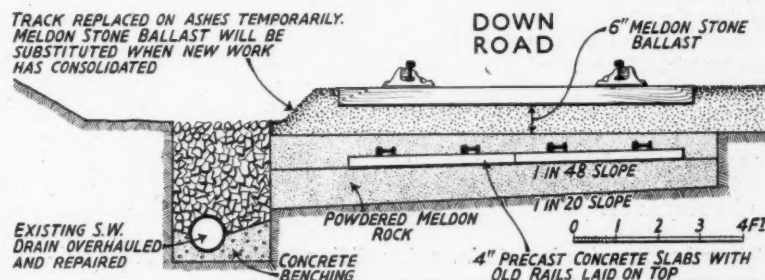
between London and Dover, at a point immediately north of Hildenborough station where the railway emerges from the hard formation of Sevenoaks tunnel and enters into the Weald clay, passing through a cutting approximately 26 miles from London. The formation as originally constructed through this cutting consisted of stone pitching surmounted by approximately 9 in. of gravel ballast, a type of formation which proved adequate for the traffic carried until recent years; but it has been found, with the increased density of traffic, together with the much greater weight of up-to-date engines, that in spite of ballasting with modern ballast and the installation of line drains in both cesses, the track can be maintained suitably for high speed only at undue cost for fettling.

In order to overcome these difficulties, the line has been re-bottomed for a length of approximately 1,100 yd., and a new formation as shown in the cross section reproduced substituted.

The actual work of excavation has been done by means of a Ruston Bucyrus  $\frac{1}{2}$  cu. yd. skimmer, and the excavation, which has a cross fall of approximately 1 in 20, is covered with a layer of 10 in. of powdered rock. Immediately on this powdered rock precast concrete slabs 4 in. thick are placed, and superimposed on these, four scrap rails

The presence of the precast concrete slabs and rails serves a two-fold purpose: firstly, they ensure an even distribution of the live load upon the soft formation beneath, and secondly, being heavy and forming an impervious layer they tend to prevent any upward movement of the clay, either general or local, induced by the heavy pressure of the clay slopes on each side. It has been found by experience that these clay slopes are very liable to slide, and precautions have to be taken against the tendency for an upward movement of the roadbed induced thereby.

To enable this work to be carried out, the main line was closed to all traffic at week-ends between the hours of 11.0 p.m. on the Saturday night and 3.45 a.m. on the



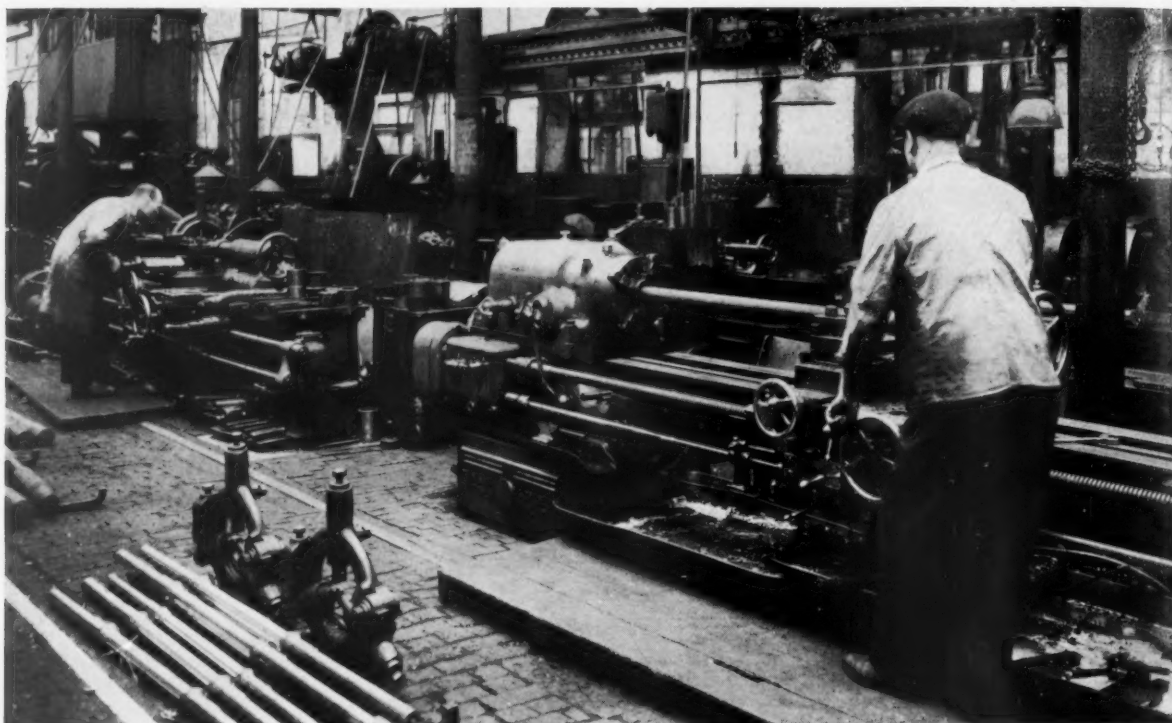
*Cross section of re-made roadbed*



Monday morning, trains meantime being diverted to alternative routes. While the work of excavation was carried out on the one line, the opposite line was used for the necessary material trains. The photographs reproduced show the general sequence of the work for which, as it is carried on principally during the hours of darkness, good lighting was essential. This was provided by the use of Tilley lamps hung on temporary gallows posts. This form of lighting was found adequate for the purpose and

has the advantage of being economical, since a length of 150 yd. of track can be lit for less than 2d. an hour. The total time required to complete one track was eight week-ends, approximately 140 yd. being dealt with each successive week-end. So far the work has been confined to the down line; the up line will be dealt with similarly early next year. We are indebted to Mr. George Ellison, Chief Engineer, Southern Railway, under whom the work is being carried out, for the above information.

### HIGH-SPEED LATHES IN CREWE WORKS, L.M.S.R.



THE accompanying photograph shows two high-speed cutting lathes used in the Crewe works of the London Midland & Scottish Railway. The machine in the foreground is a 10-in. centre super high-speed production lathe by Dean, Smith & Grace, Limited, of Keighley, having a 14-ft. bed to admit 9ft. 6in. between centres. This lathe has 12 spindle speeds, the maximum being 1,000 r.p.m. The spindle is mounted in pre-loaded roller bearings and fitted with flanged motor drive and push-button control. It is also equipped with the firm's new six-feed gearbox having feeds from 52 to 416. At the time the photograph was taken, the lathe was engaged in turning piston valve spindles, made of steel of 40-45 tons tensile. The spindles are roughed out at a speed of 429 r.p.m. with  $\frac{3}{8}$  in. depth of cut, and feed of 78 cuts per in., and finished at 750 r.p.m. with  $\frac{1}{16}$  in. depth of cut and feed of 78 cuts per in. Wimet X tools are used for roughing, and Cutanit for finishing. On the longest spindles it is found necessary to use steadies, and these can be seen in the photograph on the floor in front of the lathe.

The other machine is a 20-in. swing sliding, surfacing

and screwcutting lathe supplied by John Lang & Sons, Limited, Johnstone, near Glasgow. The headstock is provided with 12 spindle speeds with driving speedbox; all gears are manufactured from nickel-chrome heat-treated steel, and have ground teeth. The shafts run on ball or roller bearings, and lubrication of the bearings and gears is automatic. The spindle is of high carbon steel accurately ground to true cylindrical form, and the front bearing is of the Lang's patent pre-loaded roller type, which takes radial load on end thrust and gives great rigidity. The various control levers are grouped together for easier manipulation, as follow:—

1. Feed engagement and disengagement for sliding and servicing.
2. Feed reverse.
3. Screwcutting nut engagement.
4. Stop, start and reverse direction of rotation for spindle.

The lathe has other interesting features which for reasons of space it is not possible to describe on this occasion. It is shown turning piston rods in 40-45 tons tensile steel. The piston rods are roughed out at a speed of 414 r.p.m. with  $\frac{3}{8}$  in. depth of cut and feed of 48 cuts per in., and finished at a speed of 570 r.p.m. with  $\frac{1}{16}$  in. depth of cut and feed of 96 cuts per in. Tungsten carbide Wimet X tools are used for both operations.

\* By courtesy of Mr. W. A. Stanier, Chief Mechanical Engineer L.M.S.R.

## A CONCRETE-MIXING TRAIN

*A special train, designed to facilitate the extensive electrification work now being carried out in France*



THE increased amount of concreting work necessitated by the spread of electrification in France has led to the development of a special concrete train consisting of two to six hopper cars for the conveyance of sand and gravel, a water tank car, one or two mixer cars, an electric generator car, and sometimes a workshop. The last three are installed in ordinary goods wagons modified for the purpose.

The hopper wagons are divided into compartments so that the relative quantities of sand and gravel can be regulated. The sand and gravel fall from the hoppers on to a belt conveyor driven by an enclosed electric motor. The belt runs upwards slightly at the end so that the materials can be dumped on to the belt of the hopper wagon next to it. The sand and gravel are thus carried the length of the train to an elevator belt in the

mixer wagon. The interior of the mixer cars serves as a storage room for the cement, which is thus protected against the weather. As the sand and gravel pass the length of the car the operator adds the necessary cement, and the material then passes on to the mixer, to which water is pumped from the tank car.

The mixers, driven by enclosed electric motors, are of 1,200 litres capacity in the larger trains, and from them the mixed concrete falls on to a transverse conveyor belt which dumps the concrete into a chute underneath it. This chute is easily removable and can be turned at any desired angle to convey the mixed concrete where it is wanted.

In the generator car is a small petrol-electric set of either 80 kVA. for the larger trains, or 30 kVA. for the smaller.

**THE RAILWAY CLEARING HOUSE.**—The following amusing account of the Railway Clearing House as seen by the layman was published in the *Graphic* of November 6, 1872: "At the rear of the Euston terminus, and situate in Seymour Street, there is a large, lofty, and dingy building, in appearance half barrack, half prison. It has no pretension to architecture, and it is devoted to the most prosaic of work. Up its stone staircases, along its corridors, and through its swing doors, clerks are perpetually passing with books and sheets and schedules crowded with figures. The many rooms are filled with clerks busily engaged in entering dates, names, numbers, and amounts, or in adding up interminable columns, or in examining and checking, by a subtle process of cross entries. Do they ever weary of endless additions? Are they reduced to a state of calculating automata, casting up long lines of figures even in their sleep? When the annual holiday

comes round, is enjoyment marred by the ghosts of those awful schedules bristling with numerals? It is impossible to say.

"A joke seems out of place in these statistical regions; laughter is almost profane. You feel as if weighted down by the appalling amounts here represented. For this is the Railway Clearing House, established in 1842, and it represents the combined interest of most of the railway companies, who have united in a voluntary association under the provisions of an Act of Parliament. Practically no company could transact its business without the machinery of the Clearing House, which is therefore representative of the whole railway world. It possesses no legal power beyond that of suing and being sued in its own name, and that of having all disputed claims between the various lines referred to the arbitration of its committee, whose decision is final and absolute."

## BEYER-GARRATT LOCOMOTIVES FOR THE DORADA RAILWAY

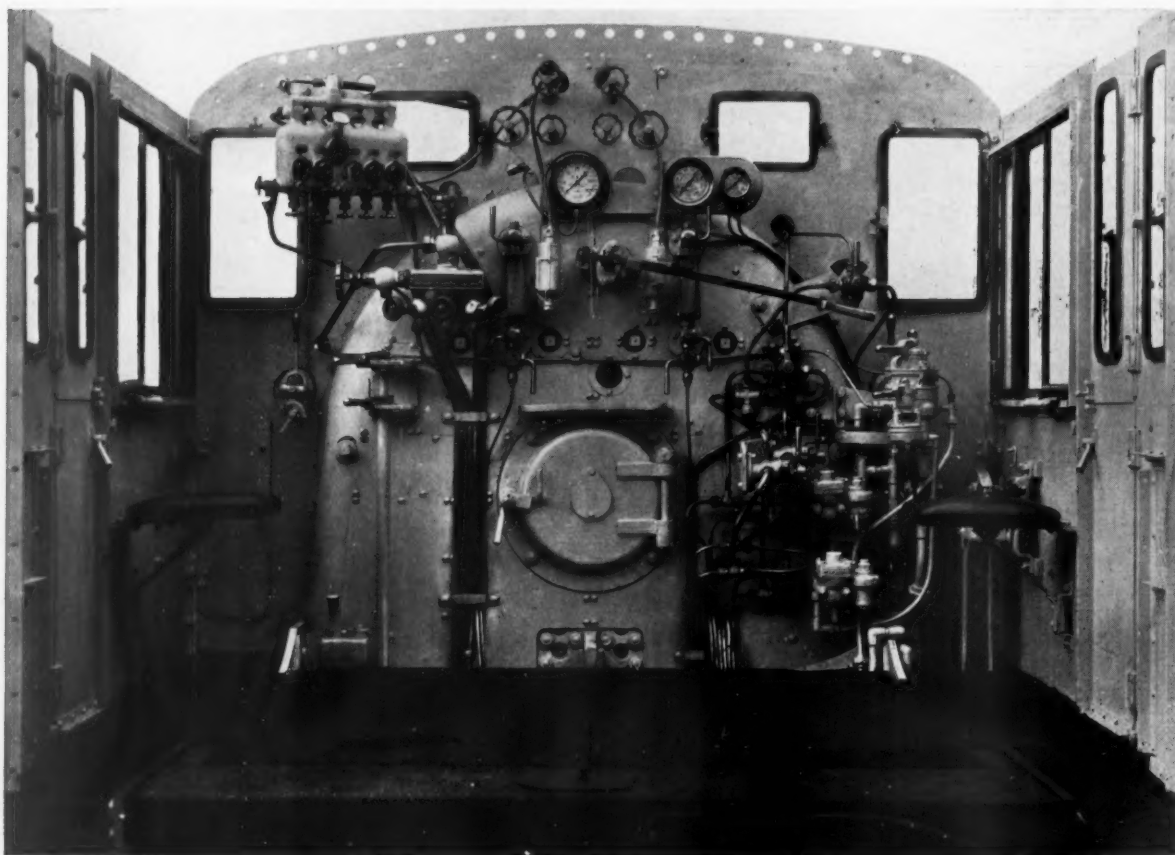
*These are the first Beyer-Garratt locomotives to be delivered to Colombia, and the first to be built to the 3-ft. gauge*

**T**WO Beyer-Garratt locomotives of a new design have recently been built by Beyer, Peacock & Co. Ltd. under the inspection of Sir Douglas Fox & Partners, Consulting Engineers, and shipped to the Dorada Railway in Colombia. This railway, which runs from La Dorada to Ambalema, along a route more or less parallel with the Magdalena River, is 70 miles long, and built to the gauge of 3 ft. 0 in. The permanent way comprises flat-bottom rails weighing 50 lb. a yard, laid on sand ballast with 2,284 sleepers to the mile. The radius of the sharpest curve is 264 ft., and the maximum permissible axleload 10 tons. The climate is tropical, sun temperatures rising to 140° F. The maximum elevation of the railway is 1,500 ft., the most difficult section of line lying between Honda, on the river bank, and Mariquita, inland, from which the well-known ropeway of the Dorada Railway Company, 48 miles in length, runs across mountainous country to Manizales. At its southern extremity, the line is joined by the Ambalema-Ibague Railway, which again is joined by the Tolima, and finally the Girardot Railways, thus giving through access to the capital, Bogota. The locomotives are particularly required for operating on a 12-mile grade of 1 in 50.

The engine is of the 4-6-2 + 2-6-4 type, with 3-ft. 4-in. coupled wheels. These are actuated by 14-in. × 22-in. cylinders, supplied from a boiler pressed to 180 lb. per sq. in. The tractive effort at 75 per cent. of the boiler pressure amounts to 29,110 lb. Principal particulars of the locomotive are as follow:—

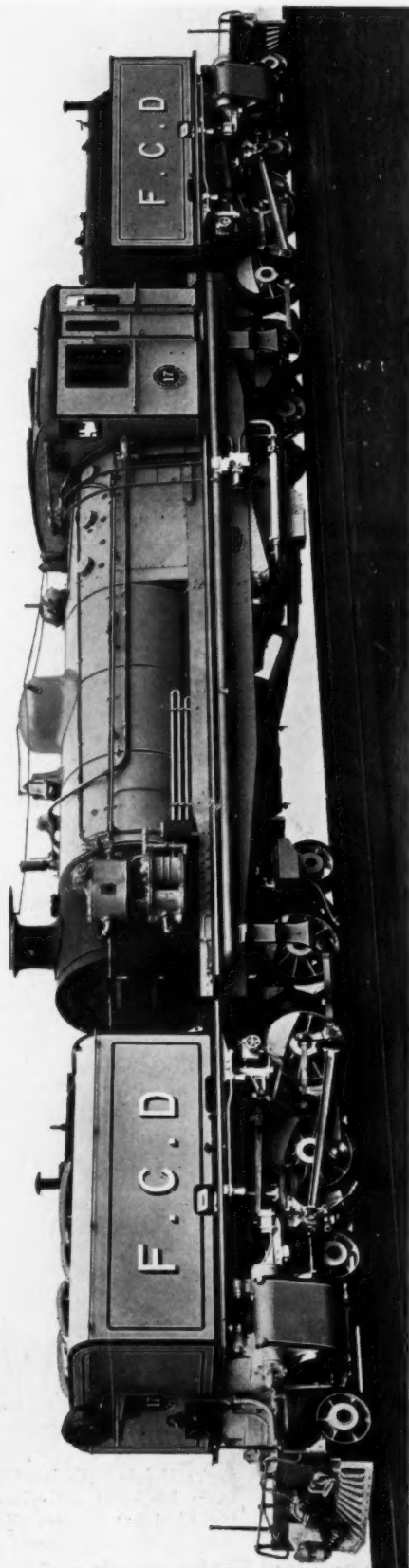
Cylinders (4), dia. . . . .	14 in.
Piston stroke . . . . .	22 "
Coupled wheels, dia. . . . .	3 ft. 4 in.
Boiler pressure . . . . .	180 lb. per sq. in.
Heating surface—	
Tubes . . . . .	1,400 sq. ft.
Firebox . . . . .	175 "
Total (evaporative) . . . . .	1,575 "
Superheater (inside) . . . . .	270 "
Combined heating surfaces . . . . .	1,845 "
Grate area . . . . .	39 "
Total water capacity . . . . .	3,500 gal.
Fuel capacity (oil) . . . . .	1,500 "
Maximum axleload . . . . .	10 tons.
Total weight in working order . . . . .	117.7 "
Tractive effort at 75 per cent. . . . .	29,100 lb.

The firebox is of the round-top pattern with direct stays. The inside firebox is of steel, welded and fitted with a



*Cab of new Beyer-Garratt locomotive for Colombia*





*Beyer-Garratt 4-6-2 + 2-6-4 locomotive of a new type recently built by Beyer, Peacock & Co. Ld., for service on the 3-ft. gauge Dorada Railway in Colombia*

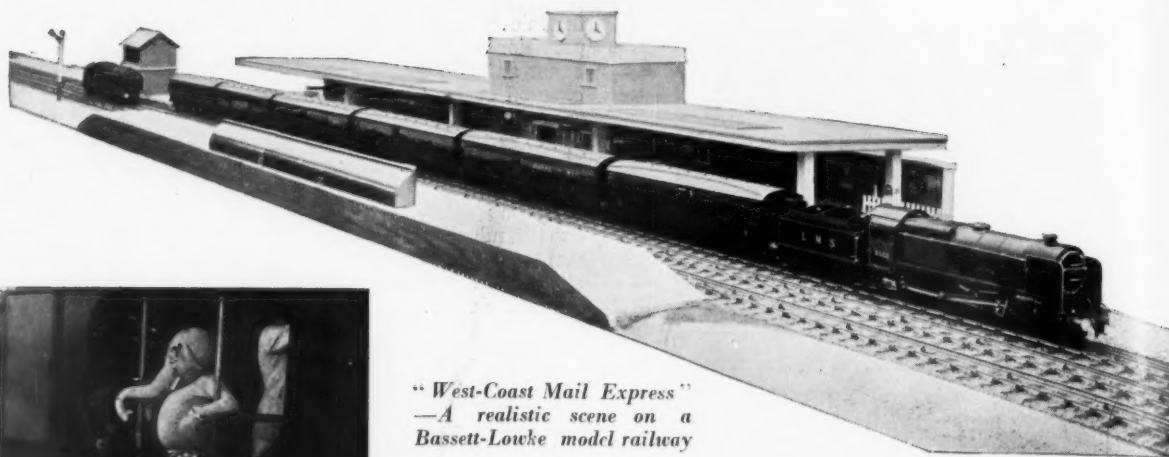
thermic syphon. Special attention has been paid to the provision of ample facilities for the washing out of the boiler and firebox, and the latter has an Everlasting type blow-off cock. Flexstel joints are provided for the flexible connections to the oil-burning grate. The boiler barrel contains 26 smoke tubes of 5½ in. outside diameter, and 139 tubes of 2-in. diameter, all of steel; the superheater elements are of the Superheater Company's Sinuflo type. Ross pop safety valves are fitted. The boiler, firebox, dome and cylinders are lagged with Roberts' asbestos mattresses. There are two lifting type injectors placed alongside the firebox and delivering through a duplex top-feed device.

#### Wheel Arrangement, Valves, and Cylinders

For the easy negotiation of the very sharp curves, the driving wheels have been made with thin flanges. The engine unit frames are of the bar type cut from the solid slab and braced together with steel castings. The cylinders, of cast iron, are bolted together in the usual manner on the centre line of the engine, and are fitted with renewable cast-iron liners and bye-pass valves. Walschaert gear actuates the inside-admission piston valves, and steam reversing is provided, locked by an oil cataract cylinder. The piston rods are fitted with Britimp metallic packing, and the cylinders are lubricated by a sight-feed lubricator of Wakefield's patent A.C. type. Bronze bearings lined with white metal are fitted to the cast steel coupled axleboxes; the bottom keeps of the boxes are also of bronze. Liners and adjustable wedges are provided for the horn cheeks. Coupled axle-box lubrication is by separate Wakefield mechanical lubricators, one on each engine unit, but the bogie axleboxes are arranged with ordinary syphon lubrication. The ball joints on each engine unit are lubricated mechanically like the coupled axleboxes. Westinghouse automatic and straight air brakes are applied to all coupled wheels and to the train, supplemented on the engine by a hand screw brake operating the blocks on the coupled wheels of the hind unit only. Air operated hand sanding is applied to the front and rear of each group of coupled wheels. The pivot centres, on which the boiler in its cradle frame is carried, are of the Beyer, Peacock patent adjustable type.

#### Cab and General Fittings

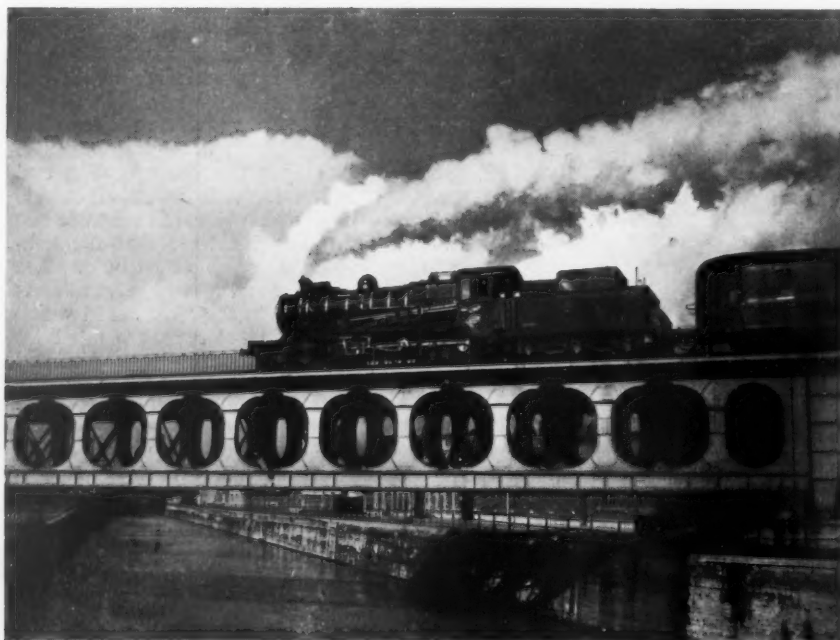
The cab is noteworthy for its exceptional size and comfort, being probably the largest cab ever fitted to a locomotive for so narrow a gauge. It measures approximately 8 ft. 0 in. long × 9 ft. 0 in. wide. As the footplate illustration shows, the various fittings have been arranged with special care to give ready access for operation and attention to joints. A steam turret is arranged outside the cab on the firebox, from which steam is taken to the various fittings. This arrangement ensures that the temperature inside the cab is kept as low as possible. The cab is equipped with side doors, and two large ventilators which can be adjusted according to the direction in which the engine is travelling. Upholstered seats are fitted for the enginemen. Cab illumination is by Pyle National Electrical equipment, but the headlights are the Tonum "E" type of J. Stone & Co. Ltd. Lights are also provided for illuminating the motion at night, and the lubricator and gauge columns. The signal bell on the top of the boiler is operated from the cab. A damper is provided for the chimney. Removable plates in the front tank at the smokebox end facilitate tube withdrawal. Majex central buffer and couplers, manufactured under licence by Kryn & Lahy (1928) Limited, of Letchworth, are fitted, and safety chains and cowcatchers are provided at each end of the locomotive.



"West-Coast Mail Express"  
—A realistic scene on a  
Bassett-Lowke model railway



Effective publicity in India. Left: Gutta Percha on the locomotive of the Flying Rance, as described on page 975.  
Right: B.B. & C.I.R. match-box label, referred to in our news columns on page 994



Left: Belgian National Railways  
train, hauled by a 4-cylinder com-  
pound 4-6-0 express locomotive,  
crossing the new Vierendeel girder  
bridge over the Charleroi canal  
near Antwerp

# RAILWAY NEWS SECTION

## PERSONAL

### SOUTHERN RAILWAY OFFICIAL CHANGES

It is officially announced that the directors of the Southern Railway have appointed Mr. H. L. Smedley, Assistant Solicitor (Parliamentary), as Solicitor of the company as from January 1, 1938, in the place of Mr. W. Bishop, who is retiring from the service.

From *The London Gazette* of November 26: Territorial Army, Engineer and Railway Staff Corps:—

Lieut.-Col. Gilbert S. Szlumper, C.B.E., T.D., A.M. Inst.C.E., to be Colonel (October 30).

Lieut.-Col. R. E. L. Maunsell, C.B.E., T.D., M.I.Mech.E., resigns his commission and retains his rank, with permission to wear the prescribed uniform.

Major A. W. Donaldson, M.Inst.C.E., resigns his commission (November 27).

Mr. H. C. R. Calver, Stationmaster, Liverpool Street, L.N.E.R., has received the insignia of a Chevalier of the Order of King Leopold, conferred upon him by King Leopold of the Belgians.

The Port of London Authority has filled vacancies arising from the appointment, recorded in our issue of November 19, of Mr. J. D. Ritchie, M.C., as Deputy General Manager from January 1 next, as follows:—

Mr. H. F. A. Le Mesurier (First Professional Assistant, Solicitors Department), to be Solicitor.

Mr. F. S. Blunt (Treasurer), to be Secretary.

Brig.-Gen. F. D. Hammond has been appointed to the board of the Central Uruguay Railway Co. of Monte Video Ltd. as representative of the second debenture holders.

Mr. J. B. Elliot, Assistant General Manager, Southern Railway, has been elected a Director of the Devon General Omnibus and Touring Co. Ltd., to fill the vacancy caused by the resignation from the board of Mr. Gilbert S. Szlumper, General Manager, Southern Railway.

Mr. Douglas Vickers, who as recorded last week died on November 23 at his London residence, Chapel House, Charles Street, Mayfair, was at one time Chairman of Vickers Limited and later President of that company. Mr. Vickers, who was 76, was a son of the late Col. T. E. Vickers, the Chairman of the Vickers Company from 1873 to 1909. Mr. Douglas Vickers was educated at Marlborough and entered the Vickers Company in his eighteenth year. Representing the Hallam Division of Sheffield in the House of Commons from 1918 to 1922,



*The late Mr. Douglas Vickers*

Chairman of Vickers Limited, 1918-26, President 1926-27, and a Director of that company and of the L.M.S.R. until his death

he was a Justice of the Peace, and some thirty years ago occupied the office of Master Cutler. He was appointed a Manager of the Vickers Company on January 1, 1886, and elected a Director in 1889. He was appointed to the office of Managing Director in 1893. Mr. Vickers succeeded his uncle, Mr. Albert Vickers, as Chairman in 1918 and was made President of the Company in 1926, from which position he resigned in 1927 but remained a member of the board until his death. He was also a Director of several other companies including the London Midland & Scottish Railway, the Carlton Main Collieries Co. Ltd. (Chairman), the Parkgate Iron & Steel Co. Ltd. (Chairman), and a member of the Association Internationale du Congrès des Chemins de fer, belonging to the Executive Committee of that association. During his life Mr. Vickers took

deep interest in metallurgy. He made many valuable contributions to that science and was well known to the learned societies both at home and abroad. A linguist of exceptional ability, he had travelled extensively. From 1917 to 1926 he was Treasurer to Sheffield University, and was one of the original members of the Sheffield Joint Hospitals Council. Among his many other interests he founded the Douglas Vickers Scholarship Trust, for employees at the Sheffield works of the company, and also a trust fund to be used for the benefit of elderly retired former employees

in necessitous circumstances. The funeral took place privately at Brookwood Cemetery on November 26, and a memorial service was held at Holy Trinity Church, Sloane Street, S.W., on Wednesday last.

### LUNCHEON AND PRESENTATION TO MR. H. R. CRIPPS

Mr. H. R. Cripps, who recently retired from the position of Chief Assistant Solicitor of the London & North Eastern Railway, was entertained to a farewell luncheon last Friday, at the Great Eastern Hotel, Liverpool Street, by a number of his former colleagues, including the chief solicitors of the London Midland & Scottish, Great Western, and Southern Railways. Mr. R. O. J. Dallmeyer presided. Those present were:—

Messrs. J. Armstrong, R. Bell, W. Bishop, S. T. Burgoyne, G. Seager Berry, E. Coleby, L. Chapman, O. R. Corble, Sir Francis Dunnel, Messrs. J. Dallmeyer, A. Eddy, J. Gaunt, W. H. Hanscombe, C. Hodgson, A. G. Hubbard, J. A. Kay, G. Marshall, H. Mayo, W. R. Mole, C. H. Newton, H. W. J. Powell, H. W. H. Richards, A. P. Ross, A. C. Stamer, J. H. Smeddle, H. Smedley, C. J. Selway, G. Sutherland, W. Bruce Thomas, W. M. Teasdale, H. L. Thornhill, and C. H. Whitelegge.

Mr. W. H. Hanscombe, followed by Sir Francis Dunnel and Mr. W. Bishop (who, on behalf of the subscribers, presented Mr. Cripps with a fishing-rod) all testified to their guest's legal knowledge and those personal characteristics which had gained the esteem of all his colleagues, and wished him a long and happy retirement. Mr. Cripps, in responding, referred to his early days with Messrs. Dyson & Company, Parliamentary Agents, and then his work at



the Ministry of Transport in drafting the Railways Act of 1921; and, finally, his ten years as Chief Assistant Solicitor of the London & North Eastern Railway. Mr. R. Bell proposed the health of the Chairman, and Mr. R. O. J. Dallmeyer briefly replied.

Mr. C. F. Hornsby, Secretary of the Irish and English Goods and Live Stock Traffic Conference, has retired after 53 years service, and has been succeeded by Mr. Francis R. Reid, of the Traffic Manager's Office, Great

ger's Office, Kingsbridge, Great Southern Railways of Ireland, who succeeds Mr. C. F. Hornsby as Secretary of the Irish and English Goods and Live Stock Traffic Conference, joined the Midland Great Western Railway, Ireland, as a junior clerk at North Wall depot over 30 years ago. Being the son of a stationmaster who was for many years in the same service, he had opportunities for acquiring a thorough knowledge of station working and had on occasions performed relief duties before his permanent appointment. Sub-

Glasgow Traffic Conference since 1927. He served in France during the war, with the Railway Construction Corps.

Mr. H. Norman Hollis leaves England on December 10 in the *Strathnaver* to succeed Mr. A. P. Case as P. & O. representative in Australia. Mr. Norman Hollis entered the P. & O. Company in 1905, and after a few years went to Aden in 1910. The following year he went to the Colombo office of the P. & O. and remained in Ceylon for five years. Then came war services in



**Mr. C. F. Hornsby**

Secretary, English and Irish Live Stock Traffic Conference, 1891-1937



**Mr. Francis R. Reid**

Appointed Secretary, Irish and English Goods and Live Stock Traffic Conference



**Mr. H. Norman Hollis**

who succeeds Mr. A. P. Case as P. & O. representative in Australia

Southern Railways of Ireland, Kingsbridge. In June, 1884, Mr. Hornsby, whose father was Assistant Traffic Manager of the Midland Great Western Railway, Ireland, transferred from the Port and Docks Board to the conference as Clerk to the then Secretary, the late Mr. James Heskett. On the death of the latter in August, 1891, Mr. Hornsby was appointed Secretary, and has, therefore, occupied the position for 46 years. He is a Barrister of Lincoln's Inn and a Fellow of the Institute of Chartered Secretaries. As the meetings of the conference are mainly held in Great Britain, Mr. Hornsby had to travel frequently to England and has covered about 1,500 sea passages during his service, including the period of the war. His reminiscences and his affability have added to the pleasure of the members of the conference with whom he travelled. Mr. Hornsby was an accomplished golfer and participated in the matches organised by the Railway Golfing Society, as well as adding by his presence to the conviviality of the social aspect of the business conferences. He is leaving in January for Australia, where he and Mrs. Hornsby intend to take up residence.

Mr. Francis R. Reid, Traffic Mana-

sequently Mr. Reid was transferred to Broadstone headquarters and acquired further experience in the Operating and Commercial Sections. On amalgamation of the Free State Railways, Mr. Reid was appointed in charge of the Cross-Channel Rates Section of the Commercial Manager's Office at Kingsbridge, retaining this position under the present Traffic Manager, Mr. P. J. Floyd, until his present appointment. Mr. Reid has acted as Secretary of the Dublin and

France, Salonika, Egypt and Palestine, from which he emerged unscathed. Returning to the P & O office, he was for a time Manager of the Passenger Department in the City, moving from there to Cockspur Street, the Chief Passenger Office, where he has since been Chief Assistant to the Manager.

The illustration below shows the party of four officers of the London Passenger Transport Board selected



London Transport officers returning on the "Empress of Britain" from their visit to the U.S.A. and Canada. Left to right: Messrs. H. T. Carr, V. A. M. Roberts, G. H. Brooks, and H. P. Gough

this year to visit the U.S.A. and Canada for the purpose of studying urban transport practice. They were Messrs. H. T. Carr (Assistant Publicity Officer), V. A. M. Robertson (Civil Engineer), G. H. Brooks (General Superintendent, Road Transport), and H. P. Gough (Stores Superintendent). The party left England by the *Queen Mary* on September 15, and spent a week in New York. Mr. Brooks and Mr. Robertson then crossed to the Pacific Coast, visiting Los Angeles, San Francisco, and Vancouver, returning to Quebec and back through Canada to Chicago. Here they rejoined Messrs. Carr and Gough, who had travelled south to New Orleans. The party returned on the *Empress of Britain* on October 23. Lectures for the staff are prepared from information gathered on these annual visits.

His Majesty the King of the Belgians has conferred on Sir Ralph L. Wedgwood, C.B., C.M.G., Chief General Manager of the L.N.E.R., the honour of Commander of the Order of King Leopold the Second.

#### L.N.E.R. APPOINTMENTS

The L.N.E.R. announces that the following appointments have been made:—

Mr. D. M. Gracie, District Superintendent, Leeds, to be District Goods Manager, Sheffield, in succession to Mr. T. F. Day, who, as recorded in our issue of November 12 retired from the service on reaching the age limit on November 4.

Mr. W. E. Green, Assistant District Superintendent, King's Cross, to be District Superintendent, Leeds, in succession to Mr. Gracie.

Mr. A. R. Dunbar, Assistant to the District Superintendent, Manchester, to be Assistant District Superintendent, Manchester.

## L.N.E.R. Pacific Named "Sir Nigel Gresley"

### Mr. Whitelaw makes presentation in ceremony at Marylebone

Mr. William Whitelaw, Chairman of the L.N.E.R., at Marylebone station on Friday last unveiled the nameplates of L.N.E.R. Pacific No. 4498, Sir

in a news paragraph last week, is named after the designer of the class, who is the Chief Mechanical Engineer of the L.N.E.R.



Mr. William Whitelaw, Chairman of the L.N.E.R., unveiling the nameplates of the hundredth Gresley Pacific. Sir Nigel Gresley, designer of the engine, is standing beside him

Nigel Gresley, and presented Sir Nigel with a model of the engine in silver. This is the hundredth Gresley Pacific of the L.N.E.R., and, as we recorded

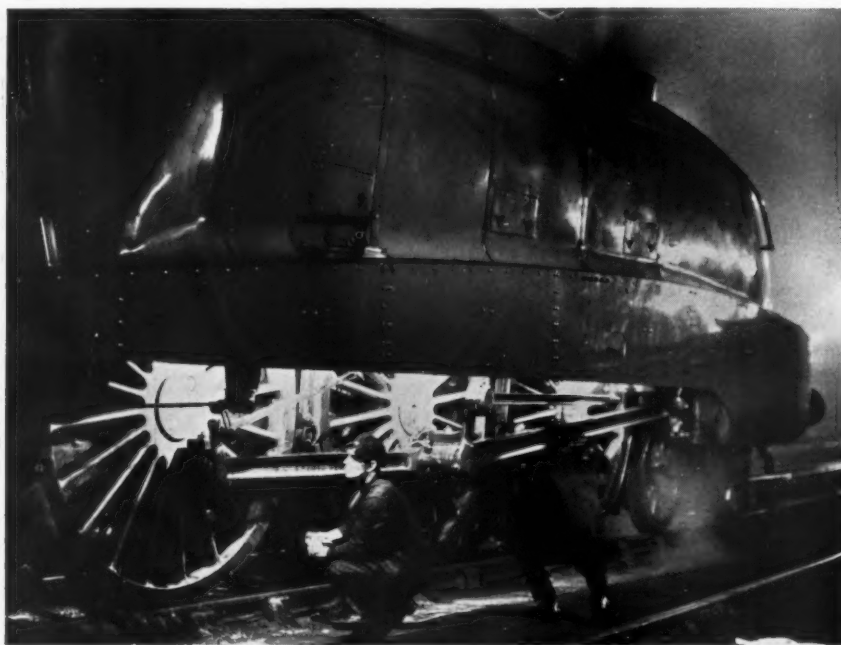
Mr. Whitelaw said that the object of the gathering that day was to hail the year in which the hundredth example of Sir Nigel Gresley's Pacific engines



Left: Mr. Whitelaw presenting Sir Nigel Gresley with a silver model of the locomotive; and (right) Sir Nigel Gresley in the cab of the engine named after him



Sir Nigel Gresley with present and past colleagues. Included in the group (left to right) are Messrs. A. C. Stamer, D. R. Edge, A. H. Peppercorn, R. A. Thom, O. V. Bulleid (C.M.E., Southern Rly.), F. H. Eggleshaw, and E. E. Thompson



The floodlit motion of the L.N.E.R. rebuilt 4-6-4 locomotive No. 10000



was turned out of the shops. They saw before them one of the most beautiful examples of locomotive engineering that the world knew. Sir Nigel, its designer, occupied a foremost position in the whole world of mechanical engineering. They were assembled to express their gratitude to him upon the occasion now being celebrated, and to ask him to accept as a memento a silver model of his own locomotive named after him. They wished him a number of years of successful and happy association with the company and his friends at Doncaster, many of whom were present to show their admiration and affection for him.

Mr. Whitelaw then unveiled the nameplates of the engine, and made the presentation.

Sir Nigel Gresley, in reply, recalled that it was now 26 years since he had been appointed Locomotive Engineer of the former Great Northern Railway. During that period he had been responsible for the design and construction of between 1,400 and 1,500 locomotives, which must have cost upwards of £7 million. Such success as he had achieved had been due to the great assistance he had received from the staff of his department. It was very pleasing on this occasion that his old friend Mr. Wintour was present, who had helped him in the construction of the first Pacific. Mr. Thom was also there, who had done so much in the construction of the present engine. Concerning locomotive design on the Continent and in America, Sir Nigel said that it was difficult sometimes to sort out the best features, but whatever was outstanding he never hesitated to adopt. Co-operation was the way to achieve the best results.

He would like to pay a tribute to the drivers who worked these engines, and got such wonderful results from them in all sorts of conditions. On one of the worst days this year when he himself had great difficulty in driving a car through the fog, the Silver Jubilee had arrived at Newcastle only 13 min. late.

Among directors and officers of the L.N.E.R. present at the ceremony were:—

Sir Murrough J. Wilson, Sir Christopher Needham, Lord Burghley, the Hon. Eric B. Butler-Henderson, Major W. H. Carver, Sir Ralph Wedgwood, Mr. R. J. M. Inglis, Mr. A. H. Peppercorn, Mr. R. A. Thom, Mr. D. R. Edge, Mr. F. H. Eggleshaw, and Mr. E. E. Thompson.

(See also editorial note on page 965)

**THE POSITION OF THE SOUTH AFRICAN RAILWAYS.**—Speaking at Johannesburg the other day, Mr. Pirow, South African Minister of Railways, called attention to the fact that on a route-mileage basis the S.A.R. system was larger than the Pennsylvania, the L.M.S.R., L.N.E.R., or G.W.R., and, although the route mileage was lower than those of the C.N.R. and C.P.R., the South African lines handled a good deal more cash, states a Reuters message.

## A Striking Performance by the Rebuilt L.N.E.R. 4-6-4 Locomotive No. 10000

The first runs in ordinary service of the rebuilt 4-6-4 locomotive No. 10000 of the London & North Eastern Railway show an appreciable advance over the tractive capacity of the highly efficient "A4" streamlined Pacifics of the same company. The table reproduced herewith is a typical run on the up Flying Scotsman; notwithstanding the heavy load and exacting schedule of this train, the locomotive gained in all 13½ min. from Darlington to King's Cross. The load was one of fourteen vehicles, including a triplet articulated restaurant car set, and weighed 446 tons tare and 470 tons gross. On the Darlington—York section a speed of 75 m.p.h. was attained on the level, and an average of 70.8 m.p.h. was maintained over the 35.6 miles from Cowton to Poppleton junction, mostly level, or slightly in favour of the engine. Poppleton junction, 42.5 miles from Darlington, was passed in 39 min. 21 sec. from the start, and York, 44.1 miles, was reached in 43 min. 8 sec. The train was 3 min. late from Darlington, and 1 min. late from York; a bad permanent way check, costing 2 min., was experienced approaching Doncaster, but despite this "even time" had again been bettered when Newark, 68.1 miles from the York start, was passed in 67 min. 18 sec. The most unusual features of the performance on this section were a fall only from 60 to 57 m.p.h. up 3¼ miles at 1 in 178.200 to Askham tunnel, after Retford, and the minimum of 61 m.p.h. up 2 miles at 1 in 300 and 2 miles at 1 in 200 to Peascliffe tunnel, before Grantham. A minute was lost by adverse signals outside Grantham, but the stop was made in 83 min. 45 sec. from York (82.7 miles) as compared with a schedule of 85½ min., or 80½ min. net. The arrival here was ¾-min. early and the departure to time.

Out of Grantham No. 10000 accelerated up the continuous 1 in 200 to 47 m.p.h. at High Dyke, and fell back to 45 through Stoke tunnel; the maximum at Essendine was 85 m.p.h. But the most impressive demonstration of the engine's capacity was south of Peterborough. There was first a rapid acceleration on the level to 74 m.p.h. at Holme, followed by a minimum of 60 m.p.h. up the 4½ miles at 1 in 200 of Abbott's Ripton bank. Then, after 2 min. loss by a permanent way check before Huntingdon, came the exceptional performance from Huntingdon to Stevenage, as this 30.3 miles, mostly against the rising tendency of the road and concluding with the steep ascent from Arlesey to Stevenage was run at an average of 70.8 m.p.h. throughout. Moreover, the 8½ miles from Arlesey up to Stevenage, first at 1 in 400 and 264, and then at 1 in 200 for 5 miles, reduced the speed no more than from

75 to 60 m.p.h., and the mile-a-minute rate was being steadily maintained up the final mile. Yet with this 470-ton load it was not necessary to increase the cut-off beyond 18 per cent., with full regulator, to achieve this result. "Even time" had now been improved on for the third time in succession, but misfortune next befell the train in the shape of a dead stop for signals at Woolmer Green; the 82.0 miles from Grantham to this point had been completed in 79 min. 1 sec. or 77 min. net, including the dead slowing through Peterborough station. Ultimately, after further checks, King's Cross was reached in 108 min. 25 sec., or 99 min. net, instead of the 105½ min. booked. Successive bookings of 45 min. for 44.1 miles, 85½ min. for 82.7 miles, and 105½ min. for 105.5 miles, were thus cut to 43, 80½, and 99 min. net respectively—a total gain of 13½ min. The times and speeds on this journey were recorded by Mr. Cecil J. Allen.

L.N.E.R. FLYING SCOTSMAN: DARLINGTON—KING'S CROSS

Engine: 4-6-4 No. 10000.

Load: 14 coaches, 446 tons tare, 470 tons full.

Distance		Sched.	Actual.	Speed
Miles.		min.	min. sec.	m.p.h.
0-0	DARLINGTON	0	0 00	—
5.2	Eryholme	7½	7 34	55½
14.1	NORTHALLER- TON	17	15 36	74/66
21.9	THIRSK	24	22 02	76½
28.0	Pilmoor	—	27 22	68
32.9	Alne	34	31 21	75
38.6	Beningbrough	—	36 07	71½
42.5	Poppleton junction	—	39 21	75
44.1	YORK	45	43 08	—
7.1	Escrick	—	9 27	72½
13.8	Selby	16½	16 05	*25
22.2	Baine	—	24 44	69
28.0	Shaftholme junction	31	29 43	71½/67
			p.w.s.	*30
32.2	DONCASTER	35½	34 53	—
38.7	Milepost 149½	—	41 40	64/57
44.3	Ranskill	—	46 30	71½/68
49.6	RETTFORD	51½	51 27	*60
54.5	Markham	—	56 26	57
60.8	Crow Park	—	61 23	83½
68.1	NEWARK	69	67 18	67
72.8	Claypole	—	71 36	68
78.5	Barkstone	—	76 43	†61
			sig.	*10
82.7	GRANTHAM	85½	83 45	—
5.4	Stoke	—	8 59	47/45
16.9	Essendine	—	18 26	85
26.0	Werrington junction	—	25 38	*64
29.1	PETERBOROUGH	29½	29 48	*20
36.1	Holme	—	37 34	74
42.0	Abbott's Ripton	—	42 47	80
			p.w.s.	*20
46.6	HUNTINGDON	48	48 36	69
49.5	Offord	—	51 06	72½
53.8	St. Neots	—	54 38	68
58.0	Tempsford	—	58 03	79
61.4	Sandy	—	60 45	74
64.4	Biggleswade	—	63 11	75
68.5	Arlesey	—	66 40	69/75
73.6	HITCHIN	72	71 03	64½
76.9	Stevenage	—	74 21	60
80.5	Knebworth	—	77 38	68
82.0	Woolmer Green	—	79 01	sig.
			stop	—
87.8	HATFIELD	86½	88 13	—
92.8	Potter's Bar	—	92 42	64½
96.3	New Barnet	—	95 47	75
			sig.	*40
103.0	PINSBURY PARK	—	102 58	—
			sig.	*10
105.5	KING'S CROSS	105½	108 25	—

\* Service, signal, or permanent way slacks

† Minimum speed at Peascliffe tunnel

## L.N.E.R. Athletic Association

The Hon. Rupert E. Beckett, a Director of the London & North Eastern Railway, and President of the L.N.E.R. Athletic Association (G.N. Section), presided at the 40th annual dinner, dance, and presentation of challenge cups, which was held at the Abercorn Rooms, London, on November 26.

Those present included: Mr. William Whitelaw, Chairman; Sir Charles A. Batho, Bt., and Sir Ronald W. Matthews, Directors; Sir H. Fildes, Sir Nigel Gresley, Mr. O. Bulleid, Mr. Birkbeck, Mr. E. A. Clear, Mr. Coleby, Messrs. O. H. Corble, R. O. J. Dallmeyer, J. Dallmeyer, F. Downes, P. J. Dowsett, A. J. Grinling, Mr. Harcourt, Messrs. G. S. Inglis, H. Jude, J. A. Kay, D. R. Lamb, J. McLaren, G. Marshall, C. Maunder, W. R. Mole, C. H. Newton, H. W. H. Richards, A. P. Ross, J. Ryan, Mr. Sawyer, Messrs. J. Smart, J. Smith, J. P. Smith, L. Stone, C. B. Tidmarsh, G. J. Woodhouse.

Sir Henry Fildes, M.P., in proposing the toast of "The London & North Eastern Railway," remarked that it had been said that an impromptu speech was not worth the paper it was written on. The L.N.E.R. served a number of the depressed areas they heard so much about. Too many people met troubles before they came and the suggested remedies were sometimes worse than the complaint. He thought that passengers travelling by the L.N.E.R. were some of the bravest people in the world as they even allowed the barber to shave them with a cut-throat razor on the "Flying Scotsman" when travelling at 60 miles an hour. At no time in its history had the company served the public more efficiently.

Mr. W. Whitelaw, in responding, referred to the speech of the previous speaker and said that cheeriness was what was wanted. Regarding the recent increase in wages, he hoped the staff would invest their well-gotten gains in purchasing privilege tickets. He did not know how long the present good times would last. It was true that the so-called good times of today were better than the days that went before, but they had a long way to go before they could return 1d. of dividend to the people who had invested 45 millions in their railway. Day in and day out, they must use every endeavour to earn something for those who were getting nothing. The directors could not get away from this problem; it was right that they could not get away from it. Recently they had induced more people to travel by train. That morning he had unveiled the locomotive named after their great Chief Mechanical Engineer, Sir Nigel Gresley. Referring to the illumination of the wheels and motion of engine No. 10000 at night, he wondered what people in the country would think when they saw the illuminated wheels flashing past in the darkness. This sort of thing helped to attract people to the railways. They had still much

work to do to bring prosperity back to the L.N.E.R. and that could only be done by all sticking together.

Sir Charles Batho, in proposing the toast of "The London & North Eastern Railway Athletic Association," said the association was the outcome of a few people getting together and rendering service to their fellow members. The fact that the association had now 600 members was a tribute to the efforts of the founders.

The Hon. Rupert E. Beckett, in re-

sponding, referred to the absence of Mr. A. J. Brickwell who had attended the annual dinners of the association for 25 years, and they were very sorry that his state of health prevented his presence that evening. They also regretted the absence of Major Carr and Mr. C. J. Brown. The latter, he understood, was now engaged in designing bridges and other structures of classical design in Greece. They were glad to welcome once again Mr. Whitelaw. After referring to the financial state of the association he presented the various cups to the prize winners.

## G.W.R. Employees' Arts and Crafts Exhibition

Visitors to the eleventh annual exhibition of arts and crafts at Paddington, organised by the G.W.R. on behalf of its employees (to which we made brief reference last week) were pleasurably surprised at the creditably high level of workmanship displayed and the diverse methods of self-expression employed by the exhibitors. Over 800 exhibits—a record entry—ranged in subject from a water colour of the Coronation illuminations at Newport to a mat in the shape of a mariner's compass made from old rope yarns; from a model locomotive to a mousetrap; and from a china cabinet to a toy elephant.

Among the many works of unusual merit were: a composite display of advertisement layout, including a double column newspaper advertisement, a book jacket, a folder cover, and a G.W.R. handbill (the work of a Swindon machineman); a working model of a compound surface-condensing marine engine (made by a Merthyr engine driver); a working model of a traction engine (Swindon coach bodymaker); and a wool rug with a G.W.R. "King" class locomotive design (a Leamington em-

ployee). Wives and dependent daughters of railwaymen, who had classes to themselves, exhibited handbags, gloves, firescreens, stools, baskets, and table-centres, as well as needlework and knitting. A special section was devoted to the exhibits by Scouts employed by the company and these included a model of Sydney Harbour bridge, aeroplanes, and wood and metal work.

Exceptionally large numbers of entries were received in the classes which comprised the "Railwayman's Academy," and a wide variety of portraits, seascapes, landscapes, and still life studies in oils, water colours, charcoal, and black and white, was on view, while examples of lithography were entered for the first time. More entries were received this year for the photographic section.

The exhibition closed on November 27. On Friday last (November 26) the principal awards were presented by the Rt. Hon. Viscount Horne, Chairman of the G.W.R. Over 100 awards were distributed. The principal prize, the "Award of Honour" gold medal, went to Mr. F. A. Cottam, a restaurant car attendant of Paddington, who also gained five other prizes.

**NEW ROLLING STOCK FOR VALE OF RHEIDOL RAILWAY.**—The Great Western Railway Company is to replace practically the whole of the existing passenger stock, used during the summer months, on the 1 ft. 11½ in. Vale of Rheidol Railway. The new stock will consist of: ten 8-wheel third class coaches, each seating 48 to 56 passengers; two 8-wheel third class brake van coaches, each seating 48 passengers; and three 4-wheel brake vans. The passenger coaches will have steel underframes, instead of wooden frames as in the existing stock. The coaches will be 32 ft. long and 6 ft. wide. They will have central buffer and drawgear and two small bogies, similar to tube trains, to facilitate negotiating the many sharp curves around the hillside encountered in the 12-mile journey from Aberystwyth to Devil's Bridge, during which the line rises to 680 ft. above sea level.

When completed the new coaches will be conveyed on special trucks from Swindon to Aberystwyth. We refer to the Vale of Rheidol Railway in an editorial note on page 967.

**MATCH-BOX LABELS DEPICTING THE FLYING RANEE EXPRESS IN INDIA.**—The Publicity & Advertising Department of the B.B. & C.I.R. is producing a new series of match labels, printed in Bombay in five colours by photo offset litho process and depicting the Flying Ranee express. The series consists of labels for match boxes, for dozen packets and for gross packets or cases. A new brand of match is thus on sale at many B.B. & C.I. stations, and other brands with labels depicting other trains on that line are contemplated. A reproduction of one of the labels will be found on page 988.

## QUESTIONS IN PARLIAMENT

### Anglo-Argentine Railroads

Sir Nicholas Grattan-Doyle (Newcastle-upon-Tyne North—C.) on November 24 asked the Secretary of State for Foreign Affairs whether he would draw the attention of the Argentine authorities to the observations in the report just issued by His Majesty's commercial secretary at Buenos Aires upon the treatment of the Anglo-Argentine railroads, and request a considered reply upon those observations, in view of the fact that the bad feeling caused by this treatment of British capital by Argentina would eventually wreck the meat agreement with Argentina's best customer.

Mr. R. A. Eden (Secretary of State for Foreign Affairs): I am not clear what observations my hon. friend has in mind. If he will be good enough to inform me of the passage in the report to which he refers I will gladly examine it.

### Waterloo & City Line

Mr. Godfrey Nicholson (Farnham—C.) on November 25 asked the Minister of Transport whether he was aware that the Waterloo & City line was in urgent need of modernisation, both as regarded the line and the rolling stock; and whether he would make representations to the Southern Railway Company to have the necessary steps taken as soon as possible.

Dr. Leslie Burgin (Minister of Transport): I am informed by the Southern Railway Company that schemes for the modernisation of this line have been under discussion, and that a committee is now investigating the problem. The report of this committee is expected at an early date, but until this has been considered by the company no decision can be reached.

Mr. Nicholson: Can the Minister give the House an assurance that he will not lose sight of this question, which affects many thousands of city workers every day?

Dr. Burgin: Yes, sir.

### Brazilian Railways

Sir Nicholas Grattan-Doyle (Newcastle-upon-Tyne North—C.) on November 29 asked the Secretary to the Overseas Trade Department if he would request His Majesty's commercial secretary at Rio de Janeiro to provide a Report on the position of those Brazilian railways in which British capital was invested; and would he inform the Brazilian Government that His Majesty's Government would require that the treatment of British capital in those railways should be part of any proposals of the Brazilian authorities in respect of the defaulted Brazilian public obligations to British subjects.

Viscount Cranbourne (Under-Secretary of State for Foreign Affairs), who had been asked to reply, said: With

regard to the first part of the question, I would refer my hon. friend to the publication of His Majesty's Stationery Office entitled "Report on Economic and Commercial Conditions in Brazil," dated September, 1936. It is hoped that it will be possible to publish a similar report for the year 1937. As regards the second part of the question I would refer my hon. friend to the reply which I have today given to a question by the hon. member for Lincoln (Mr. W. S. Liddall).

### Railways and Air Attacks

Mr. Garro Jones (Aberdeen N.—Labour) on November 29 asked the Prime Minister what were the current instruments of international law on the subject of bombing civil populations; whether any provisions covered the case of military objectives such as railway stations, power stations, and factories which were situated in populous areas and were defended only by anti-aircraft guns; what was the policy of the Government in regard to British offensive action in the event of war against such objectives; and whether His Majesty's Government were fully apprised of the present attitude of foreign governments towards this question.

Sir John Simon (Chancellor of the Exchequer): The question asked by the hon. members raises a number of difficult issues which I do not think can be dealt with satisfactorily in the form of question and answer. The hon. member may rest assured that His Majesty's Government will have all due regard to humanitarian considerations in any military operations which may be undertaken by this country.

Mr. Garro Jones: Will the right hon. gentleman direct his attention in particular to the special case mentioned in the question, namely, a military objective such as railway stations in the middle of populous areas defended only by anti-aircraft guns, and will he answer that point if I put down a specific question?

Sir John Simon: I think the answer I gave applies to that situation.

### Underground Railways Ventilation

Mr. Garro Jones (Aberdeen N.—Labour) on December 1 asked the Minister of Transport whether he could give assurances that the destruction or failure of one or more power stations would not destroy the ventilation system of the underground railways for use as non-electrical transport routes or as shelters; and whether plans were prepared to give effect to these potential uses of the underground routes.

Dr. Leslie Burgin (Minister of Transport): I am well aware of the importance of these matters. As regards the possibility of using under-

ground railways as public shelters, I would refer the hon. member to the reply which my hon. friend, the Under-Secretary of State for the Home Department, gave to the hon. member for South Islington on October 28.

## Parliamentary Notes

### Railways Bills in Parliament

Bills are being promoted for the coming Session by the Bombay, Baroda & Central India Railway Company; the London & North Eastern Railway Company; the London Midland & Scottish Railway Company; the London Passenger Transport Board; and the Southern Railway Company.

The B.B. & C.I.R. Bill proposes:—

1. To confer powers upon the company relative to the construction and equipment in any part of India of road vehicles and aircraft, the maintenance and management of road vehicles and aircraft transport services therein, and the making of arrangements with other companies, bodies or persons for the provision, maintenance, management and financing of such services.
2. To amend section 27 of the Bombay, Baroda & Central India Railway Act, 1906, which relates to contracts with the Secretary of State by including therein the matters above referred to and by repealing restrictions upon the equipment of railways.

By the L.M.S.R. Bill it is proposed to construct works in Blackpool; to acquire lands; to stop up and discontinue a portion of the Newcastle Canal in Stoke-on-Trent; to make special provisions as to entry and compensation; to amend the L.M.S.R. superannuation scheme; to provide for an extension of time for completion of a work; to confirm an agreement releasing the company from obligations imposed by Section 44 of the Bangor & Caernarvon Railway Act, 1851; to confirm an agreement with the Commissioners of the Port of Lancaster varying an existing agreement relating to traffic arrangements at the port.

The London Passenger Transport Board will seek power to sink air shafts or construct other works at Oxford Circus station, Mornington Crescent station, Newington Causeway, and Balham High Road, affecting the Morden-Edgware line, and at Lambeth North station, Bakerloo line, with a view to improving ventilation in the tubes.

Powers will be taken in the Southern Railway Bill as to stopping up footpaths, acquisition of lands, and extensions of time for compulsory purchase of lands. Provisions will be inserted as to increases in rents, tolls, rates and charges at Southampton docks, and as to confirmation of an agreement between the Padstow Harbours Commissioners and the company. It is proposed to amend Section 27 of the Amesbury & Military Camp Light Railway Order, 1898, and the Amesbury & Military Camp Light Railway (Newton Toney Curve) Order, 1903, so as to permit the use of vehicles with greater axle weights than those permitted by the said Order.



## Transfer of the Lübeck-Büchen and Brunswick District Railways to the Reich

The Minister of Transport has decided to take over the Lübeck-Büchen and the Brunswick District (*Braunschweigische Landes*) Railways, and it is expected that the transfer will become effective on January 1, 1938. This decision is stated to have been taken because the Lübeck-Büchen line connects important sections of the Reichsbahn, and it has for some time appeared desirable that its organisation and working should be incorporated with that of the national system. The Brunswick undertaking has recently assumed considerably greater importance owing to

the establishment of new industrial undertakings in the districts it serves, and to cope with the traffic likely to arise its incorporation in the Reichsbahn is considered advantageous.

The Minister states that the special circumstances obtaining in these cases have led to his decision, and that the previously-announced policy of leaving independent the private and light railway lines is not being varied. The transfer is to take place under existing legislative powers. Without any hardship the members of the staff will become Reichsbahn servants.

The shareholders, who have had little return of recent years, will receive 1936 Reichsbahn bonds bearing  $4\frac{1}{2}$  per cent. interest, in exchange for the shares at face value. The share capital of the Lübeck-Büchen line is 38,700,000 RM., length of route 161 Km. (100 miles), and there are 1,500 ordinary employees and 1,132 officials. The concession would have expired in 1951. The last dividend was in 1929, 5 per cent. The share capital of the Brunswick Company is 6,000,000 RM. and the length of route 108 Km. (67 miles). There are 395 ordinary employees and 237 others. The concession has no time limit. In 1927  $3\frac{3}{4}$  per cent. was paid, then nothing till 1936, when 2 per cent. was paid.

## The Last of a Famous London Bus Type

London buses have long been looked upon as typifying the best in urban transport practice, within the somewhat stringent and conservative limits imposed in past years by the Metropolitan Police licensing requirements, and therefore the appearance or withdrawal of a London bus type is a subject of widespread transport interest. On Tuesday last, November 30, the rearward of the once famous fleet of NS buses made its final journey, and it is pleasant to learn that a specimen of the type is to be preserved in the Museum of Transport which the London Passenger Transport Board maintains at Chiswick works. Actually, the last journey in public service was made on route 166 (London Bridge to Aldwych) when the vehicle left Aldwych at 7.27 p.m. for the Bank, en route to the garage at West Green, and thence to the scrap metal yard.

The NS-type bus made history in passenger transport when the London General Omnibus Company sprang a surprise on rivals by introducing it unexpectedly in May, 1923. At first it had no covered top and the tyres were of solid rubber, but in designing the vehicle the company looked forward to persuading the authorities to permit the upper deck to be fitted with a roof. Permission had been denied on the ground that a bus with a covered top deck might be blown over in a storm! In the new bus the centre of gravity was lowered by  $10\frac{1}{2}$  in., and for the first time passengers stepped straight off the pavement into the bus, instead of having to climb up steps. After some two years of service with these vehicles, the L.G.O.C. carried its point in securing sanction to introduce a covered-top bus into London, and on October 2, 1925, four covered NS buses began service on route 100 (Elephant and Castle to Epping Town). Simultaneously upholstered seats were adopted on the upper deck.

Solid tyres were still retained for these (and, indeed, all) double deckers, but the pneumatic tyre had been in-

troduced into the L.G.O.C. fleet on some single-deck buses on August 12, 1925. Pneumatics were first used in London on double deckers on June 4, 1927, when an experimental six wheeler called the LS1 was placed in service (it was described and illustrated in THE RAILWAY GAZETTE of June 3, 1927). It was, however, left to the famous NS type to be the first four-wheeled pneumatic-tyred double

deckers in the L.G.O.C. fleet, when the first batch so fitted began work on July 4, 1928.

Now the last of the pioneering NS type has been withdrawn. There were in all some 2,400 of them built, and the largest number in service at any one time was 2,380 in the year 1930. On July 1, 1936, the number had fallen to 1,032, and more recent acceleration of the programme of replacement by modern buses resulted in the total NS strength being reduced to 337 on July 1 of the present year.

## More Speedometers for G.W.R. Locomotives

As the result of experience gained from fitting speedometers to the "King" and "Castle" class engines, it has now been decided to equip engines of the "Star" and "Saint" classes as well. The speedometer is operated by one of the driving wheels, and the dial in the cab records the speed of the train up to 100 m.p.h. The dial is 5 in. in diameter, and the instrument is fixed on a corner of the boiler just below the driver's look-out window. It is mounted on Sorbo rubber blocks to absorb vibration, and insulated from the effects of heat by fibre washers. The total number of engines to be equipped will be about 250.

The speedometer equipment adopted as the G.W.R. standard consists of an a.c. generator driven direct from the driving wheel, and a voltmeter with a scale graduated to read in m.p.h. mounted in the cab. The drive is from a small return crank incorporated in the crank-pin washer of the right-hand trailing driving wheel. A block on this crank engages in a slotted link; mounted on a spindle carried on the same centre line as the driving axle by a bracket suspended from the footplate. The slot is long enough to allow for the greatest possible displacement of the driving wheel relative to the footplate bracket. The drive is transmitted through bevel gears to the generator, the armature of which runs

on a vertical axis at  $2\frac{1}{2}$  times the driving axle speed. An armoured cable conveys the alternating current to the voltmeter in the cab, first passing through a rectifier so that the voltmeter gives a uni-directional reading for both directions of running. The coil in the generator has alternate tapings to permit of fitting to engines with different diameter wheels.

## Staff and Labour Matters

### Engineering Apprentices' Wages

A few weeks ago the engineering employers agreed to concede the right of trade unions to negotiate on behalf of apprentices, boys, and youths, and discussions to settle the appropriate machinery were completed on Wednesday, November 24, between the Engineering employers and the Amalgamated Engineering Union and on Friday, November 26, between the employers and the other trade unions associated in the engineering trades joint movement, when it was mutually agreed to recommend for acceptance by the respective constituent bodies certain proposals which had been exchanged at the meetings. Details of the proposals will not be made known until after acceptance by the parties. A meeting of the unions in the joint movement was held in York on December 1 to consider the proposals.

## RAILWAY AND OTHER MEETINGS

## Central Uruguay Railway Co. of Monte Video Ltd.

The annual general meeting of the Central Uruguay Railway Co. of Monte Video Ltd. was held at River Plate House, Finsbury Circus, London, E.C.2, on November 29, Mr. G. H. Harrison, C.M.G., Chairman of the company, presiding.

The Secretary (Mr. H. O. Tubby) read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said that their company had been reorganised and its capital re-arranged and re-allocated, and the previously leased allied companies had been absorbed into the Central Uruguay Railway Company. The position had been explained at some length in the report itself, and he did not propose to deal further with past history. The work involved in framing the scheme of arrangement on a basis equitable to all concerned was a task of major magnitude, and he would wish to accord their gratitude to Messrs. Deloitte, Plender, Griffiths & Company, their auditors, and to Messrs. Bischoff Cox & Company, their solicitors, for their tireless and expert services over a period of two years, which resulted in the evolution of the scheme adopted. Equally, it was his pleasant duty to record their thanks to the committee representing the insurance and trust companies. Not only did they satisfy themselves that the interests of the various holders received fair and proper consideration, but they showed a constructive helpfulness for which the board was most grateful. To represent the second debenture holders on the board, General Hammond had been appointed by the trustees, and both the board and the stockholders were heartily to be congratulated on his advent.

Very shortly after the scheme received approval, the Chairman visited Uruguay, accompanied by General Hammond and their eminent Consulting Engineer, the Hon. Philip Henderson, formulating a programme of expenditure on economic lines with a view to making the railway an efficient machine, especially as regards shop equipment and rolling stock, in relation to the work it had to do. With the co-operation of the General Manager and his officers, this was done, and they were confident that economies would result. It was fortunate that such was the case, as it must be realised that the cost of all materials for the running of the railway, more especially oil fuel, which at present prices would alone increase expenditure by some £20,000 a year, would adversely affect the net revenue and therefore must be offset as far as possible. They had not yet taken steps to make an issue of prior lien stock, and were doing everything possible to avoid it. In any case, they thought that any issue

that might be made would be materially less than the total of £500,000 authorised.

Some progress had been made in Uruguay towards co-ordination of transport services, which was a matter of primary national importance. The report of a committee embodying constructive suggestions as to the legislation and organisation necessary for carrying this out, had already been presented, and they ventured to hope that the President would be able to add the initiation of this co-ordination and control to his other great achievements before he left the office in March next. The fortunes of their company were largely in the hands of the Government. They had passed through a very critical and difficult period of economic crisis lasting some six years, and whilst the country had emerged, or at least was emerging, with renewed prosperity, the British-owned railways were left struggling to avoid insolvency. The two main factors working against recovery were the severe and unfair competition to which they were subjected from road transport, and the continued depreciation—today about 45 per cent.—in the sterling value of the Uruguayan peso. The remedy for the former was to pass a law of transport co-ordination so that each form of transport performed its proper function, the railway bulk delivery and long-distance traffic, and the road vehicles short haul, collection, and delivery. It was only in this way that the un-economic cut-throat competition might be avoided. The solution of the latter, namely exchange, might be such preferential treatment as was possible, having in mind the great public service rendered by the railways.

The accounts now submitted were not comparable with those of former years, and the opportunity had been taken of presenting the balance sheet in a revised form. They would see that it included the new capital and debenture stocks issued in accordance with the scheme of arrangement which became operative on June 30 last. In substance the increase in the nominal value of the share and debenture capital was accounted for by the assets required from the extension companies, consisting principally of land, some of it realisable, buildings, permanent way, and rolling stock. The remaining assets and liabilities were not materially affected by the reorganisation, as under the old working agreements their company carried the stores on hand, and other working assets and liabilities. As regards prospects the latest air mail letter from the General Manager stated that a greater area of all cereals had been sown under favourable conditions. Sale of wool stocks might be spread

over a longer period than last year, thereby inviting a keener competition by the road hauliers for its transport. The expected tonnage of general goods offering would be about the same as last year, plus a considerable traffic in connection with the hydro-electric scheme. As to livestock, herds and flocks were free from disease though somewhat backward in condition. The increase in passengers was expected to continue.

The Chairman also wished to place on record his appreciation of the work done by their able leader in Uruguay—Mr. Grindley—and his officers. They were keenly co-operating to make good under very difficult conditions. They also owed thanks to Mr. Tubby and his staff, who, in addition to their other duties, had been strenuously engaged for many months past in carrying out the vast amount of work involved in giving effect to the scheme of reorganisation.

The report and accounts were unanimously adopted.

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**BIRMIID INDUSTRIES LIMITED.**—Mr. Cyril C. Maudslay (the Chairman), in the course of his address at the annual meeting held this week, said the year's trading results had been excellent and the prospects remained good. There was a great deal of pessimistic talk just now about a rapidly approaching slump in trade. For his part he did not believe it, and he thought that we were suffering at home from a state of nerves induced by the trade conditions obtaining at the moment in certain countries overseas. So far as the companies comprising Birmid Industries Limited were concerned there was no occasion for pessimism. Every one of the component companies showed an increase during the year, and in some cases the percentage increase was in the order of 33 per cent. over the previous year. The companies manufacturing aluminium castings had been very busy during the year, particularly in the sand casting department, and they were just completing an additional foundry intended specially for dealing with aircraft castings in aluminium. After careful consideration, the board had come to the conclusion that it was essential to raise additional capital, and felt that the shareholders would prefer this course rather than that of raising money by the creation of debentures, or other form of borrowing.

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**A NEW RAIL LUBRICATOR.**—In our description of the new P. & M. positive feed rail lubricator on page 928 of last week's issue, it was stated that the grease pumps had plungers projecting  $\frac{1}{4}$  in. to  $2\frac{3}{4}$  in. above the top table of the rail, so positioned that the overhanging tread of each passing wheel pressed them down. The second figure quoted should, of course, have read  $\frac{3}{4}$  in. instead of  $2\frac{3}{4}$  in. In the last line also, 30° F. should read — 30° F.

## RAILWAY AND OTHER REPORTS

**Havana Terminal Railroad.**—The trustees for the holders of the Havana Terminal Railroad Company's 5 per cent. mortgage debentures and debenture stock have received from the company a sum sufficient to pay on January 1, 1938, the interest for the half-year ended January 1, 1933, together with interest thereon at the rate of 5 per cent. per annum.

**Paraguay Central Railway.**—Gross receipts for the year ended June 30 last at the average market rates of exchange were £120,674, an increase of £27,419, or 29.4 per cent. Working expenses (£82,774) were higher by £15,391, or 22.8 per cent., leaving net receipts of £37,900, an improvement of £12,028. After adding sundry credits £8,965, and charging £53,500 for interest on the prior lien and "A" debenture stocks, there remains a debit balance of £6,635 on net revenue account for the year, making the total debit balance to be carried forward £131,861.

**Bermuda Railways Investment Co. Ltd.**—The report of this company shows that the total receipts of the Bermuda Railway Company (its subsidiary) for the year to June 30 last amounted to £55,404, against £47,444 for 1935-36, and that the operating costs rose from £37,498 to £40,284, leaving a balance of £15,120, compared with £9,946. An increase in tourist and cruise traffic during the year accounted for the improvement in railway receipts. Remittances amounting to £6,000 were received by the investment company during the year in reduction of the railway company's temporary loans.

**Assam-Bengal Railway.**—Gross receipts for the year ended March 31, 1937, including those of the lines worked for other administrations, were Rs. 1,80,97,557, against Rs. 1,71,74,228, and the working expenses were Rs. 1,57,56,601, compared with Rs. 1,46,01,067 in the previous year, so that the operating ratio has risen from 85.02 per cent. to 87.06 per cent. On the company's own line gross earnings amounted to Rs. 1,69,65,212, and net earnings to Rs. 23,40,956, or 0.97 per cent. on the capital expenditure. It is proposed to carry forward the £1,848 balance at credit of English surplus profits account and the £7 received in respect of interest on deposit.

**Manila Railway Co. (1906) Ltd.**—Income for the year to June 30 last amounted to £140,437, made up of £134,317 from interest held by this company in the Manila Railroad Company, £6,073 from interest on the company's holding of its own debentures, investments, and bank interest, and £46 from transfer and other fees. The balance carried to net revenue account is £125,616. Debits in the revenue account are £22,991 for "B" debenture sinking fund and £93,423 for interest

paid and accrued on the company's "A" and "B" and 5 per cent. debentures. This leaves a balance of £9,201, out of which a dividend of 1 per cent., less tax, is being paid on the preference capital, requiring £8,997. The 5 per cent. debenture stock was redeemed on August 7 last.

**Jonas Woodhead & Sons Ltd.**—A final dividend of 10 per cent., less tax, is recommended for the year ended August 31. For 1935-36 the dividend was 7½ per cent.

**Dennis Bros. Ltd.**—The directors recommend a final dividend of 10d. a ls. share, making 1s. 2d. for the year to September 30 (against 1s. 8d. for 1935-36). The carry-forward has been increased by £9,500.

**Guest Keen & Nettlefolds Limited.**—The directors have declared an interim dividend of 3 per cent. actual, tax free, on the ordinary capital, payable December 18. At this time a year ago the distribution was 2½ per cent. actual, tax free.

**Butler Machine Tool Co. Ltd.**—At a board meeting, held at Halifax on November 15, the directors recommended a dividend of 10 per cent., less income tax at 5s. in the £1 on the ordinary shares for the period from January 18 to September 30, 1937, which is equivalent to a rate of 14.25 per cent. for a full year.

**Richard Thomas & Co. Ltd.**—An interim dividend of 5 per cent. actual, less tax, is to be paid on January 17 next on account of the year to March 31 last. This rate is the same as before, but in January last a fresh issue of £1,250,000 in ordinary shares was made to shareholders on bonus terms, and this new capital now ranks for dividend.

**Foreign Railways Investment Trust Limited.**—The accounts for the year ended October 31 show a loss of £907 (against a loss of £183 for 1935-36). This has been deducted from the sum carried forward, reducing it to £43,990. A valuation of the investments as at October 29 last revealed a heavy depreciation compared with the book value of £2,920,491. The balance sheet shows a debit on investments realisation account of £76,508 (against £48,446) and an "investments written down account" of £276,503, representing amounts written off investments under schemes of arrangement.

**Moss Gear Co. Ltd.**—A net profit of £60,478 was earned for the year ended August 31. A sum of £7,000 is provided for taxes, and the sum of £2,000 is transferred to preference dividend reserve. The directors propose to pay a final dividend of 8½ per cent. on the ordinary shares, making a total of 12½ per cent. for the year, comparing with 10 per cent. for the previous year, and to place a further

£4,000 to preference dividend reserve, leaving £23,451 to be carried forward, against £9,973 brought in. Owing to increased business a considerable outlay on additional buildings and plant has been necessary during the past year.

## Forthcoming Meetings

Dec. 7 (Tues.)—**Assam-Bengal Railway Co. Ltd.** (Ordinary General), 56, Victoria Street, S.W.1, at noon.

Dec. 9 (Thurs.)—**Bengal-Nagpur Railway Co. Ltd.** (Ordinary General), Gresham House, E.C., at noon, followed by Extraordinary General Meeting at 12.15 p.m.

Dec. 15 (Wed.)—**Madras & Southern Mahratta Railway Co. Ltd.** (Ordinary General), 123, Victoria Street, S.W.1, at noon.

## Developments in Railway Signalling

Mr. A. E. Tattersall, Signal and Telegraph Engineer, Southern Area, L.N.E.R., addressed a meeting of the Norwich Traffic Club at the Castle Hotel, Norwich, recently on developments in railway signalling. Having outlined the limitations of manual signal and point operation, he spoke of the importance of centralising traffic control. By much extending the area which could be controlled from a single signal box, track circuits and electro-mechanical point operation were a step towards such centralisation. He suggested that the ideal would be to combine the work of control and signalling, so that those whose business it was to watch and direct the flow of traffic could transmit their instructions direct to the train crews.

Mr. Tattersall then described the principles and advantages of colour-light signalling, with special reference to the approach lighting of such signals as first introduced in this country by the L.N.E.R. in 1928. The expense of colour-light installations was justified where extra track capacity was required, where extensive renewals had in any case to be made, or where economies in working would balance the capital outlay. In other circumstances, aspects equivalent to those of colour-lights could be displayed, and their fog-penetrating powers reproduced, by using special lamps in conjunction with mechanically operated spectacles (having no semaphores attached). These lamps are either supplied from primary batteries, and approach-lit, or may be permanently lighted from some power supply. The aspects shown should conform to those of ordinary colour-lights. Mr. Tattersall considered that from the driver's point of view colour-light signalling almost nullified the case for automatic train control. However, to incorporate a train-stop with every colour-light stop signal would allow overlap to be considerably shortened and headway thereby much increased. Cab signalling was necessarily a part of the ideal train control system.



## NOTES AND NEWS

**Jamaica Government Railway Damaged by Floods.**—As a result of great floods in which 70 people are reported to have been drowned, the Jamaica Government Railway has been seriously damaged, and three bridges are reported to have been partly or completely destroyed.

**Nitrate Railways.**—The directors of the Nitrate Railways Co. Ltd. announce that no material change has occurred in the position of the company regarding the future operation of the Iquique-La Noria concession. The company still continues to work that concession under rental payment to the Government.

**Freight Rebates Scheme Review.**—The Railway Rates Tribunal, which last week concluded the 1937 review of the operation of the Railway Freight Rebates Scheme, announced, on November 30, its decision that the existing rates of rebate should continue and that no modifications or alterations in the scheme are desirable. The decision in full will be published later.

**First Ski Lift in Austria.**—The first ski lift in Austria is now under construction at Zürs, a resort on the Arlberg line, and is expected to be ready before the opening of the ensuing winter sports season. Zürs is situated 5,800 ft. above sea level, and the lift will enable skiers to ascend the Hasenscharte, which is 450 ft. higher, in a few minutes.

**Proposed New Railway in Bolivia.**—A Dutch firm, the Handels Consortium, has requested the Bolivian Government to grant it a concession to finance and construct a railway between Cochabamba, Bolivia, and Santa Cruz. The proposal is that the State should work this line and pay back the cost of construction within ten years, according to a Reuters message from La Paz.

**Electrification of South Shields Branch.**—Work on the electrification of the L.N.E.R. line from Newcastle to South Shields is proceeding rapidly and on Sunday last, November 28, the third rail was electrified for the first time. During coming weeks, leakage, continuity, bonding, and other tests will take place, and it is hoped that the electric service will begin early next year.

**Royal Tour of Duchy of Cornwall Estates.**—On November 30, the King left Paddington station, G.W.R., at 10.40 p.m. in the royal train for a two-day tour through the Duchy of Cornwall estates in the West of England. He was met at Paddington station by Viscount Horne, Chairman of the G.W.R., and Sir James Milne, the General Manager. At the head of the train was the *Windsor Castle*, the locomotive which the late King George V drove in 1929. The King left the train at Mortonhamstead at 10.30 the

following morning, and visited by road parts of the estate in Devon and Cornwall. Completing the first day of his tour at Camborne, the King left by train in the evening to continue his visits in Somerset. Mr. F. R. Potter, Superintendent of the Line, accompanied the train.

**Heavy Southern Railway Continental Traffic.**—During July, August, and September 1,381,618 passengers travelled to the Continent and the Channel Islands by Southern Railway routes—an increase of 34 per cent. over last year and of 41 per cent. over 1931 (itself a record year). The Dover-Ostend route carried the highest number of passengers, its total of 507,157 being more than double that of 1931. On an average, 805 first class and 820 second class passengers a month have used the sleeping cars of the outward Dover-Dunkerque train ferry service.

**Munich Station Chapel to be Abolished.**—It was announced recently that the little Roman Catholic chapel in Munich station, which for some years has been one of Munich's most famous institutions, is to be abolished. The railway chapel was built in 1925 and consecrated by Cardinal Faulhaber, the Archbishop of Munich, to enable tourists to attend early morning Mass before starting on their travels. It has always been a favourite meeting place for skiers setting out in parties for a day's sport in the mountains. The decision to demolish the chapel has been taken in order to make way for some new railway kiosks.

**L.M.S.R. Main Line Blocked at Luton.**—Owing to a collision between a mineral and a local goods train at Luton station in the afternoon of December 1, the L.M.S.R. (Midland section) main line was completely blocked. The passenger services from St. Pancras to the Midlands and the North were cancelled, and loudspeakers directed intending passengers to Euston and Marylebone stations to which the services had been transferred. The Duke of Gloucester, who was to have left St. Pancras at 4.55 p.m. for Melton Mowbray, left Marylebone on the 6.20 p.m. The line at Luton was reported clear in the early hours of the following morning.

**L.N.E.R. Musical Society Concert.**—On Monday last, November 29, a Bohemian concert was held by the L.N.E.R. Musical Society at the Hamilton Hall, Liverpool Street Hotel, E.C.2. This was the hundred and ninety-seventh concert to be given by this society, which is now in its thirtieth season. Mr. William Whitelaw, Chairman of the L.N.E.R. and President of the society, was present and introduced to the assembly Mrs. H. W. H. Richards (wife of the Electrical Engineer, L.N.E.R.), who was in the chair on this occasion. Leslie Woodgate conducted

the society's full symphony orchestra and the London section of the male voice choir. Olive Groves was the soloist. Among those present were the following past and present officials of the L.N.E.R. :—

Messrs. H. W. C. Drury, late District Superintendent; E. L. Hawkins, late Engineer; W. H. Hyde, late General Manager, G.E.R.; R. J. M. Inglis, Engineer; Col. H. H. Mauldin, Superintendent, Eastern Section; Messrs. L. H. K. Neil, Assistant Continental Traffic Manager; C. H. Newton, Divisional General Manager; R. R. Pettit, Chief of Police; H.W.H. Richards, Electrical Engineer; J. C. L. Train, Assistant Engineer.

Before taking her seat Mrs. Richards was presented with a silver and ivory mallet, suitably inscribed.

**Threatened Strike on the Great Southern Railways, Ireland.**—Giving evidence before the Railway Tribunal in Dublin on November 17, Mr. W. H. Morton, the General Manager, said that, at a meeting that day with the men's unions, their representatives were threatening to strike unless their demands for restoration of the 5 per cent. wage cuts were met in full. The sum involved was over £64,000, and Mr. Morton expressed the view that some increase in wages would have to be made in the New Year. Subsequently, he stated that his company considered the present wage rates abnormal and would resist increase to the utmost. Application was made by the company for a 5 per cent. increase in all existing charges and exceptional charges, an increase that was absolutely necessary to meet increased costs and liabilities. An immediate strike is, however, considered unlikely.

**Hotel, Restaurant, and Catering Exhibition.**—This exhibition is now in progress at Olympia, Kensington, London, W.14, and will remain open until December 8. The stands of the 122 firms or associations represented show modern ideas in hotel equipment ranging from cooking, refrigerating, washing, and similar appliances to furniture and office requisites. A set of cutlery as used on the Coronation train is among the displays. The international *Salon Culinaire* is held in connection with the exhibition, and again transport subjects have inspired certain entries (among which are seven from the North British Hotel, Edinburgh). One competitor is showing a model of the Forth Bridge in sugar, and another illustrates "The March of Time" in a large "set-piece," made of butter, comparing a stage coach and the Short-Mayo composite aircraft as extremes of transport development.

**Railway Concession for the Blind.**—From Wednesday last, December 1, a blind person and his guide are able to travel on British railways for the price of one ordinary monthly return ticket, provided the afflicted man is travelling for business purposes. Hitherto the concession has been based upon the old single fare for the single journey or the three months return ticket, and the change reduces the cost to the blind

by about one-third on each return journey. Captain Sir Ian Fraser, Chairman of St. Dunstan's and Member of the Council of the National Institute for the Blind, in announcing the alteration, said: "We are very grateful indeed to all the railway companies and to the Railway Clearing House for further improving the facilities for our people's travel. The gift is a generous one. Everyone admires the blind person who, in spite of his disability, pursues a profession or business calling, and the railway companies have helped him very much by relieving him of the double expense of paying for himself and his guide."

**Continental Service Changes.**—The L.N.E.R. announces that from December 1 the up Antwerp Continental express leaves Harwich (Parkeston Quay) at 6.20 a.m. and arrives at Liverpool Street at 7.53 a.m. (as against the former arrival of 9.39 a.m.). The steamer from Antwerp reaches Harwich correspondingly earlier. Southern Railway services have been affected from Wednesday last by the altered working

of the Golden Arrow from the Gare du Nord, where it no longer waits for the through coaches from the Blue Train, Simplon-Orient Express, and Rome Express. These are now run independently from the Gare du Lyon. Under the new arrangements, the Golden Arrow (10.30 a.m. from the Gare du Nord) conveys the ordinary first and second class coaches, which formerly left at 10.40 a.m.

**Ransome & Marles Bearing Co. Ltd.**—This company is making an issue of 75,000 shares, bringing the capital up to the authorised amount of £700,000. The shares, of the denomination of £1, are offered to shareholders at 60s. each in the proportion of one for every £9 of ordinary stock held. The new capital will enable the company to complete the buildings in course of erection which are required to cope with its increased output. The orders in hand are greater than at any period in the company's history, and new developments show that the use of ball and roller bearings provides a large field for further expansion.

### British and Irish Traffic Returns

GREAT BRITAIN	Totals for 47th Week			Totals to Date		
	1937	1936	Inc. or Dec.	1937	1936	Inc. or Dec.
L.M.S.R. (6,867 mls.)	£	£	£	£	£	£
Passenger-train traffic...	402,000	392,000	+ 10,000	24,436,000	23,487,000	+ 949,000
Merchandise, &c. ...	525,000	497,000	+ 28,000	23,373,000	22,634,000	+ 739,000
Coal and coke ...	312,000	271,000	+ 41,000	12,043,000	11,303,000	+ 740,000
Goods-train traffic ...	837,000	768,000	+ 69,000	35,416,000	33,937,000	+ 1,479,000
Total receipts ...	1,239,000	1,160,000	+ 79,000	59,852,000	57,424,000	+ 2,428,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	268,000	264,000	+ 4,000	16,019,000	15,320,000	+ 699,000
Merchandise, &c. ...	384,000	372,000	+ 12,000	16,095,000	15,517,000	+ 578,000
Coal and coke ...	282,000	260,000	+ 22,000	11,723,000	10,951,000	+ 772,000
Goods-train traffic ...	666,000	632,000	+ 34,000	27,818,000	26,468,000	+ 1,350,000
Total receipts ...	934,000	896,000	+ 38,000	43,837,000	41,788,000	+ 2,049,000
G.W.R. (3,739½ mls.)						
Passenger-train traffic...	166,000	169,000	- 3,000	10,255,000	9,987,000	+ 268,000
Merchandise, &c. ...	213,000	200,000	+ 13,000	9,493,000	9,088,000	+ 405,000
Coal and coke ...	131,000	116,000	+ 15,000	5,279,000	4,735,000	+ 544,000
Goods-train traffic ...	344,000	316,000	+ 28,000	14,772,000	13,823,000	+ 949,000
Total receipts ...	510,000	485,000	+ 25,000	25,027,000	23,810,000	+ 1,217,000
S.R. (2,155 mls.)						
Passenger-train traffic...	255,000	251,000	+ 4,000	15,298,000	14,569,000	+ 729,000
Merchandise, &c. ...	67,500	64,500	+ 3,000	2,954,000	2,990,500	- 36,500
Coal and coke ...	39,500	35,500	+ 4,000	1,413,000	1,442,500	- 29,500
Goods-train traffic ...	107,000	100,000	+ 7,000	4,367,000	4,433,000	- 66,000
Total receipts ...	362,000	351,000	+ 11,000	19,665,000	19,002,000	+ 663,000
Liverpool Overhead ... (6½ mls.)	1,314	1,136	+ 178	61,170	56,147	+ 5,023
Mersey (4½ mls.) ...	4,203	4,723	- 520	197,306	192,564	+ 4,742
*London Passenger Transport Board ...	536,900	553,400	- 16,500	12,346,100	12,331,600	+ 14,500
IRELAND						
†Belfast & C.D. pass. (80 mls.)	1,821	1,774	+ 47	121,369	122,597	- 1,228
goods	458	579	- 121	22,703	25,596	- 2,893
total	2,279	2,353	- 74	144,072	148,193	- 4,121
Great Northern pass. (543 mls.)	7,850	7,950	- 100	523,650	508,850	+ 14,800
goods	9,400	10,400	- 1,000	444,950	461,600	- 16,650
total	17,250	18,350	- 1,100	968,600	970,450	- 1,850
Great Southern pass. (2,076 mls.)	26,538	25,936	+ 602	1,722,436	1,701,027	+ 21,409
goods	58,724	59,283	- 559	2,019,421	2,053,220	- 33,799
total	85,262	85,219	+ 43	3,741,857	3,754,247	- 12,390

\* 22nd week (before pooling)

† 48th week

### British and Irish Railway Stocks and Shares

Stocks	Highest 1936	Lowest 1936	Prices	
			Dec. 1, 1937	Rise/ Fall
G.W.R.				
Cons. Ord. ....	64½	45½	61½	+¾
5% Con. Prefce. ....	126½	116¾	117	—
5% Red. Pref.(1950) ..	113	108½	110½	—
4% Deb. ....	119½	110½	109	+1
4½% Deb. ....	121	114	111	—
4½% Deb. ....	129	121	117½	—
5% Deb. ....	141	134	128½	—
2½% Deb. ....	79½	74	69½	—
5% Rt. Charge ....	136½	130	127½	—
5% Cons. Guar. ....	135½	127½	124½	—
L.M.S.R.				
Ord. ....	35½	17	29	+¾
4% Prefce. (1923) ....	83	52½	70½	+2½
4% Prefce. ....	92½	81	81	+½
5% Red. Pref.(1955) ..	109½	103½	106	—
4% Deb. ....	111½	105½	105½	+½
5% Red. Deb.(1952) ...	119½	115½	113½	—
4% Guar. ....	106½	101½	100½	—
L.N.E.R.				
5% Pref. Ord. ....	14	9	8½	+¼
Def. Ord. ....	7½	4½	4½	+½
4% First Prefce. ....	79½	55½	67½	+2
4% Second Prefce. ....	31½	18½	26	+½
5% Red. Pref.(1955) ..	100½	77½	97½	—
4% First Guar. ....	104½	98½	95	+1
4% Second Guar. ....	99	90	88½	+½
3% Deb. ....	85½	79	79	+½
4% Deb. ....	109½	104½	103	—
5% Red. Deb.(1947) ...	116½	110½	110½	—
4½% Sinking Fund Red. Deb.	111½	107½	108	—
SOUTHERN				
Pref. Ord. ....	98½	82½	86½	+1
Def. Ord. ....	27½	20½	19	—
5% Pref. ....	120½	118½	114½	—
5% Red. Pref.(1964) ...	119½	115½	113½	—
5% Guar. Prefce. ....	136	129½	124½	—
5% Red. Guar. Pref. ....	120	115½	115	—
(1957)				
4% Deb. ....	117½	109½	106½*	-½
5% Deb. ....	140	134	125½*	-2
4% Red. Deb. ....	116½	110	105½*	-1
1962-67				
BELFAST & C.D.				
Ord. ....	9	4½	4½	—
FORTH BRIDGE				
4% Deb. ....	107	105	102½	—
4% Guar. ....	107½	104	101½	—
G. NORTHERN (IRELAND)				
Ord. ....	19½	9½	5	-1
G. SOUTHERN (IRELAND)				
Ord. ....	63	41	27	—
Prefce. ....	65	46	35	—
Guar. ....	97½	81	70½	—
Deb. ....	99½	83½	86	—
L.P.T.B.				
4½% "A" ....	127½	121	116*	-1½
5% "A" ....	138½	133½	125½*	-2
4½% "T.F.A." ....	111½	108½	107	—
5% "B" ....	131½	123½	118½*	-2
"C" ....	112½	93	81	—
MERSEY				
Ord. ....	40½	23	24½	—
4% Perp. Deb. ....	103	98	97	—
3% Perp. Deb. ....	78	74½	74½	—
3% Perp. Prefce. ....	68½	63½	66½	—

\* ex dividend

## CONTRACTS AND TENDERS

W. & T. Avery Limited has received orders from the Indian Stores Department for one 40-ton self-contained railway wagon weighbridge.

### Wagons for S. Africa and Egypt

C. M. Hill & Company, on behalf of S.A. des Ateliers de Construction de Familleureux, has received an order from the South African Railways & Harbours Board for 1,000 four-wheeled cattle wagons.

The Egyptian State Railways Administration has placed orders for wagons as follow:—

Metropolitan-Cammell Carriage & Wagon Co. Ltd.; 400 four-wheeled 10-ton low-sided wagons.

Gc. Française de Materiel de Chemins de Fer, S.A.; 20 30-ton flat wagons.

Vogelfabrik Scandia, 20 30-ton flat wagons.

Vauxhall Motors Limited has received an order from the Afghanistan Government for 488 Bedford three-ton trucks for the transport of cotton between Mazara-Shariff and railhead in India at Peshawar.

The Pressed Steel Car Co., Inc. (Koppcl Division), agent for the Kalamazoo Railway Supply Company, has received an order from the Egyptian State Railways Administration for four motor gang trolleys (Rcf. E.S.R. Eng. 22,109, total price £1,948 8s., delivery c.i.f.).

Whitelegg & Rogers Limited has received an order from the Egyptian State Railways Administration for the supply of a power-operated press for the manufacture of hard grease blocks used in connection with the Ajax system of grease lubrication. An order has also been received from the Buenos Ayres Great Southern Railway for six hand-operated grease presses.

John Walsh & Co. (Birmingham) Ltd. has received an order from the Bengal-Nagpur Railway for a quantity of hexagonal bars.

Leyland Motors Limited has received the following orders from railway-associated road operators:

Cumberland Motor Services Limited; five oil-engined Titans and five oil-engined Tigers.

Maidstone & District Motor Services Limited; nine oil-engined Tigers.

Yorkshire Traction Co. Ltd.; four oil-engined Tigers.

Isle-of-Man Road Services Limited; six oil-engined Lions.

Sheffield Corporation; 18 oil-engined torque converter Titans.

North Western Road Car Co. Ltd.; six petrol-engined Cubs.

British Timken Limited is to supply a total of 95 sets of roller bearings for the engine bogie and tender wheels of the Class "19D" branch-line 4-8-2 locomotives which the South African Railways & Harbours Administration has ordered from the Krupp, Borsig, and Skoda locomotive shops. We regret that the supplier of the roller bearings for this batch of engines was incorrectly given in our issue of last week, when details of the total order for 210 locomotives

for this administration were recorded. British Timken Limited, thus, is to supply a total of 139 sets of engine bogie and tender bearings for these orders, while the Skefko Ball Bearing Co. Ltd., similarly, will provide 116 sets of bearings.

D. Wickham & Co. Ltd. has received orders from the South African Railways & Harbours Administration for 35 single-gear pump trolleys with clutch, and 23 double-gear pump trolleys for 3 ft. 6 in. gauge, and two double-gear pump trolleys for 2 ft. gauge.

Greaves, Cotton & Co. Ltd. has received orders from the Indian Stores Department for one 60 kW. d.c. oil-engine-driven generating set.

Alfred Herbert (India) Limited has received orders from the Stores Purchase Committee, Government of Mysore, Bangalore, for two double railway wheel lathes, and one Webster & Bennett boring and turning mill.

John Spencer & Son (1928) Limited has received an order from the Bombay, Baroda & Central India Railway Administration, to the inspection of Messrs. Rendel, Palmer & Tritton for 544 helical springs.

The Madras & Southern Mahratta Railway Administration has placed the following orders, to the inspection of Messrs. Rendel, Palmer & Tritton:—

Alfred Herbert Limited; one screwing machine to be manufactured by the Landis Machine Company; one capstan lathe and three sensitive drilling machines.

Churchill-Redman Limited; two capstan lathes.

Cincinnati Machine Tool Co. Ltd.; two horizontal plain milling machines.

Henry Broadbent Limited; one centre lathe for locomotive reversing and brake shafts.

The Crown Agents for the Colonies have recently placed the following orders:—

Ferranti Limited; meters.

Siemens Electric Lamps & Supplies Limited; meters.

Whitehead Iron & Steel Co. Ltd.; mild steel bars.

P. & W. MacLellan Limited; mild steel plates.

Wm. Baird & Co. Ltd.; pig iron.

English Drilling Equipment Co. Ltd.; power gear.

H. Pels & Co. Ltd.; punching and shearing machine.

I.C.I. (Rexine) Limited; Rexine.

Ruston-Bucyrus Limited; shovels and drag-shovel equipment.

Dorman Long & Co. Ltd.; steelwork for bridge.

Motherwell Bridge & Engineering Co. Ltd.; steelwork for bridge.

Stewarts and Lloyds Limited; steel piping and tubular steel poles.

Acme Lead Seal Company; steel seals.

Newport & South Wales Tube Co. Ltd.; steel and tubular poles.

Goodwin Barsby & Co. Ltd.; stone breaker spares.

F. Parker Limited; stone granulator.

McIlwraith & Co.; tarpaulins.

Siemens Bros. & Co. Ltd.; telegraph iron-work.

Ericsson Telephones Limited; telephone materials.

Pile Fabric Manufacturing Co. (Bradford), Ltd.; upholstery cloth.

Duke & Ockenden Limited; well-boring materials.

Loudon Brothers; wheel lathe.

Firth Co. Ltd.; wire.

La Brugeoise et Nicaise & Delcuve has received an order from the Central Argentine Railway for 100 sets of wagon body materials for the conversion abroad of 20-ton low-sided wagons into 20-ton covered goods wagons.

Electro Mechanics Limited has received orders from the Indian Stores Department for 350 superheater tubes.

Banting & Tresillian Limited has received an order from the South Indian Railway Administration for copper plates to be supplied to the inspection of Messrs. Robert White & Partners.

The Swedish State Railways Administration has bought an additional 36,000 tons of engine coal, steam coal, and bunker coal, learns Reuters Trade Service from Stockholm. The engine coal bought is all British, viz., Maude, Broomhill, West Hartley Main, Bothal, Davison, Cowpen, &c., and the prices vary from 23s. 6d. to 24s. 5d. In steam coal 2,000 tons of Buddles singles have been bought at 25s. The bunkers, 8,000 tons, were bought from Germany.

Dorman, Long & Co. Ltd. has received an order for 5,000 pairs of steel fish-plates for 85 lb. rails, from the Central Argentine Railway.

The Argentine State Railways Administration is calling for tenders, to be presented in Buenos Aires by December 22, for the supply of 10 steel bridge spans. Firms desirous of offering material of United Kingdom manufacture can obtain further details from the Department of Overseas Trade.

Tenders are invited by the Government of India, Railway Department (Railway Board), receivable at the Office of the Director, Mechanical Engineering, Railway Board, New Delhi, by January 3, for the supply of a total of 586 I.R.S. wagons, without wheels and axles, required for Indian railways for delivery between April 1, 1938 and March 31, 1939, and divided as follow:—

### Broad Gauge—

- 10 I.R.S. all-steel motor vans.
- 143 I.R.S. "BVG" type goods brake vans.
- 21 I.R.S. "TO" type oil tank wagons.
- Nine I.R.S. "TP" type petrol tank wagons.
- 40 I.R.S. "TM" type molasses tank wagons.
- Six I.R.S. "CE" type explosives wagons.

### Metre Gauge—

- 350 I.R.S. "MC" type covered wagons.
- Seven I.R.S. "MCE" type explosives wagons.

The Electricity Department of the City of Salisbury, Southern Rhodesia, is calling for tenders (Specification No. 6/1937) for the supply, delivery, and erection of one 7½-ton hand-operated overhead travelling crane, including runway gantry and necessary material and equipment; and the supply and delivery of one 20-cwt. electrically-operated elevating truck of the low lift type and battery driven. A separate quotation is required for a charging plant suitable for the battery submitted. The supply available is at 380/220 volts, on a 3-phase, 4-wire, 50-cycle system. Tenders should reach the Town Clerk, City Hall, Salisbury, by December 22. A copy of the specifications and general conditions of tender, together with a drawing, may be borrowed from the Department of Overseas Trade, London, S.W.1.



## PARLIAMENTARY NOTICES

IN PARLIAMENT  
Session 1937-38.

**London Midland & Scottish Railway**  
**NOTICE IS HEREBY GIVEN** that application has been made to Parliament in the present Session by the London Midland & Scottish Railway Company (hereinafter referred to as "the Company") for leave to bring in a Bill for purposes of which the following is a concise summary:—

1.—Alterations to Rigby Road and extension of bridge over Rigby Road and additional opening under Waterloo Road in the County Borough of Blackpool.

2.—Acquisition by compulsion or agreement of lands in the County Borough of Blackpool in the Borough of Rugby in the Parishes of Long Lawford Church Lawford Wolston Brandon Bretford and Binley in the Rural District of Rugby in the Parish of Baginton in the Rural District of Warwick and in the Parish of Hampton in Arden in the Rural District of Meriden in the County of Warwick in the City and County Borough of Coventry in the City and County Borough of Birmingham in the City and County Borough of Stoke-on-Trent and in the Borough of Evesham in the County of Worcester.

3.—Diversion of footpath in the said Borough of Evesham.

4.—Stopping up and discontinuance of portion of Newcastle Canal in the City and County Borough of Stoke-on-Trent.

5.—Special provisions as to entry and compensation.

6.—Amendment of London Midland & Scottish Railway Superannuation Scheme.

7.—Extension of time for completion of Work No. 3 authorised by the London Midland & Scottish Railway Act, 1931.

8.—Confirmation of agreement releasing the Company from obligations imposed by section 44 of the Bangor & Caernarvon Railway Act, 1851.

9.—Confirmation of agreement between the Company and the Commissioners and Trustees of the Port of Lancaster varying an existing agreement relating to traffic arrangements at the Port of Lancaster.

10.—To re-enact with or without amendment powers of the Company relating to holding, selling, disposal and building on or over lands of the Company.

11.—Incorporation, application, amendment or repeal of Acts

**AND NOTICE IS HEREBY FURTHER GIVEN** that on or before the 20th day of November, 1937, plans and sections relating to the said works and plans of all lands which may be taken or used compulsorily with a book of reference to such plans were deposited for public inspection as follows (that is to say):—As regards the works and lands in the County Borough of Blackpool with the Town Clerk at his office; as regards the lands in the City and County Borough of Birmingham with the Town Clerk at his office; as regards the lands in the City and County Borough of Stoke-on-Trent with the Town Clerk at his office; as regards the works and lands in the County of Worcester with the Clerk of the County Council at his office at Worcester.

And that copies of so much of the said plans, sections and book of reference as

relates to each of the several areas herein-after mentioned in which the works and lands are situate were on or before the said 20th day of November, 1937, deposited for public inspection as follows (that is to say):—As relates to any non-county borough with the Town Clerk of such borough at his office; as relates to any urban district (not being a borough) or to any rural district with the Clerk of the District Council of such district at his office; as relates to any parish having a Parish Council with the Clerk of such Parish Council at his office or (if he have no office) at his residence and as relates to any parish not having a Parish Council with the Chairman of the Parish Meeting of such parish at his residence.

On and after the 4th day of December, 1937, a copy of the Bill may be inspected and copies thereof obtained at a price not exceeding three shillings for each copy at the offices of Messrs. Beale & Company, 12, Newhall Street, Birmingham, and of Mr. W. O. Hickson, Divisional Solicitor, London Midland & Scottish Railway Company, Hunt's Bank, Manchester, and at the Station-master's office at the following railway stations of the Company, viz.:—Evesham and Stoke-on-Trent, and also at the undermentioned offices.

Dated this 1st day of December, 1937.

H. L. THORNHILL

10, Great College Street,

Westminster, S.W.1.

Chief Legal Adviser

BEALE & Co.,

22, Great Smith Street,

Westminster, S.W.1.

Parliamentary Agents.

## Forthcoming Events

Dec. 3 (Fri.).—Institute of Transport (Nottingham Graduate), at Guildhall, 7 p.m. "L.N.E.R. Canals," by Mr. J. Twells.

Institution of Civil Engineers (Assoc. of Glasgow Students), at Inst. of Engineers and Shipbuilders, Glasgow, 7.30 p.m. "Railway Work in North China," by Mr. W. Leitch.

Omnibus Society, at Inst. of Marine Engineers, The Minories, London, E.C.3, 7 p.m. "London Area Developments," by Mr. Charles F. Klapper.

Dec. 4 (Sat.).—Stephenson Locomotive Society (Midlands-Northern), at 4, Bury Old Road, Manchester, 6.30 p.m. "A Railway Miscellany," by Mr. F. Carrier.

Dec. 6 (Mon.).—G.W.R. (Birmingham) Lecture and Debating Society, at Great Western Hotel, Snow Hill Station, 6.30 p.m. "The Development of the Empire's Airways," by Mr. A. Valder.

Dec. 7 (Tues.).—Great Eastern Mechanics' Institution, Stratford, 8 p.m. "Modern Theory and Practice in Lubrication," by Col. S. J. M. Auld, M.C.

Institute of Transport (Bristol), at Bristol Tramways' Welfare Centre, Easton Road, 7 p.m. "Elements of the Law of Ocean Carriage," by Mr. F. Wilshire.

Institute of Transport (Metropolitan Graduate), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 6 p.m. Exhibition of P.L.A. Films.

Institute of Welding (London), at Inst. of Mechanical Engineers, Storey's Gate, S.W.1, 6.30 p.m. "The Application of Surfacing Metals by Oxy-Acetylene," by Mr. C. Bainbridge.

Institute of Welding (Tyneside), at Armstrong College, Newcastle, 7.30 p.m. "The

Medical Research on Welders' Lungs," by Mr. A. Doig.

Institution of Automobile Engineers (London), at Royal Society of Arts, John Street, W.C.2, 7.45 p.m. "The Effect of National Conditions on Automobile Design in Great Britain," by Mr. M. Platt.

Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "Air Raids as they Affect the Work of the Civil Engineer," by Col. W. Garforth, D.S.O.

L.N.E.R. (Newcastle-Sunderland) Lecture and Debating Society, at Sunderland, 7 p.m. Debate with Middlesbrough Debating Society. "That all Motive Power Used for the Transport of Traffic should be under the Jurisdiction of an Officer Responsible for the Working of Traffic."

Permanent Way Institution (York), at Railway Inst., Queen Street, 6.30 p.m. "Tube Railway Construction under London," by Mr. J. Martin.

Dec. 8 (Wed.).—Diesel Engine Users' Association, at Caxton Hall, Caxton Street, London, S.W.1, 5 p.m. "Diesel Influence on Road Transport Costs," by Major P. Sanders and Mr. E. Wenlock.

Institute of Transport (Leeds) at Hotel Metropole, 6.30 p.m. "Some Traffic Problems, with Special Reference to the Passenger," by Dr. K. Fenelon.

Institute of Transport (Manchester-Liverpool Graduate), at Exchange Station Hotel, Liverpool, 6.30 p.m. "The Working of Intensive Suburban Passenger Traffic," by Mr. W. Miller.

Institute of Welding (Manchester), at College of Technology, 7.30 p.m. "Impressions of Continental Welded Steelwork," by Mr. E. Gardner.

Institute of Welding (Scottish), at Royal Philosophical Inst., 207, Bath Street,

Glasgow, 7.30 p.m. "Design of Welded Structures," by Mr. G. Roberts.

Institute of Welding (Tees-side), at Cleveland Scientific Inst., Corporation Road, Middlesbrough, 7.30 p.m. "Examples in Design of Welded Structures," by Mr. J. Wright.

Institution of Automobile Engineers (Manchester), at Engineers' Club, Albert Square, 7 p.m. "The Influence of Law on Design," by Major E. Beaumont.

Institution of Railway Signal Engineers, at Inst. of Electrical Engineers, Savoy Place, London, W.C.2, 6 p.m. "Relay Interlocking," by Mr. A. Golding.

Permanent Way Institution (London), at Underground Railways' Dining Club, Pelham Street, S.W.7, 7 p.m. "The Form and Function of the Railway in the Cities of the Future," by Mr. R. Hughes.

Dec. 9 (Thurs.).—Institute of Fuel (London), at Junior Inst. of Engineers, 39, Victoria Street, S.W.1, 6 p.m. "Pulverised Fuel Firing," by Messrs. Hurley, Dickinson and Cook.

Institute of Metals (London), at Society of Motor Manufacturers, 83, Pall Mall, S.W.1, 7.30 p.m. "Magnesium Casting Alloys," by Mr. A. Murphy.

Institute of Welding (Leeds), at Technical College, Huddersfield, 7.30 p.m. "Substitution of Castings by Welding," by Mr. P. Roberts.

Institute of Welding (Liverpool), at City Technical College, Byrom Street, 7.30 p.m. "The Bronze Welding of Tube and Sheet Copper," by Mr. W. Kilburn.

Southern Railway (London) Lecture and Debating Society at Chapter House, St. Thomas' Street, S.E.1, 5.45 p.m. "Brighton—From Fishing Village to Queen of Watering Places," by Mr. C. Latham.

## LEGAL AND OFFICIAL NOTICES

## RAILWAY RATES TRIBUNAL.

RAILWAYS ACT, 1921.  
LOCAL GOVERNMENT ACT, 1929.NEW EXCEPTIONAL RATES.  
REDUCTION OF EXCEPTIONAL RATES.  
CLASSIFICATION OF MERCHANDISE.  
REDUCTIONS FOR OWNER'S RISK.

## RAILWAY FREIGHT REBATES SCHEME.

NOTICE IS HEREBY GIVEN that the Court of the Railway Rates Tribunal will sit on the following dates:—

Tuesday, 18th January, 15th February, 15th March, 12th April, 10th May, 14th June, 12th July, 18th October, 15th November and 13th December, 1938, to hear:

Applications as to the granting of New or the reduction of existing Exceptional Rates for which the consent of the Tribunal is required,

and  
Applications to the Tribunal for New Exceptional Rates or for the reduction of Exceptional Rates.NOTICE IS FURTHER GIVEN that the Court will sit on the following dates:—  
Tuesday, 25th January, 26th April, 19th July and 25th October, 1938, to hear:

Applications to determine any questions as to the alteration of the Classification of Merchandise, or the alteration of the Classification of any article, or the Classification of any article not at the time classified, or any question as to the Class in which any article is classified,

Applications as to the Reductions to be made from the Standard Charges where Damageable Merchandise is carried under Owner's Risk Conditions,

and  
Applications to determine any question as to whether any Rebate is or was allowable or as to the basis on which any Rebate should be or should have been calculated under the Railway Freight Rebates Scheme. Printed copies of the Procedure to be followed in any of the above-mentioned Applications can be obtained from the Office of the Tribunal.T. J. D. ATKINSON,  
Registrar.Railway Rates Tribunal,  
Bush House,  
Aldwych,  
London, W.C.2.  
1st December, 1937.The Rohilkund and Kumaon Railway  
Company Limited

THE Directors are prepared to receive Tenders for the supply of:—

## TEN LOCOMOTIVE BOILERS

Specification to be seen at the Company's Offices.

Tenders addressed to the undersigned, and envelope marked "Tender for Boilers," with the name of the firm tendering, to be lodged not later than Noon on the 4th day of January, 1938.

For each Specification a fee of £1 will be charged, which cannot, under any circumstances, be returned.

The Directors do not bind themselves to accept the lowest or any Tender.

By Order of the Board,

J. WILLIAMSON,  
Secretary.237, Gresham House,  
Old Broad Street,  
London, E.C.2.  
29th November, 1937.

## Crown Agents for the Colonies

COLONIAL GOVERNMENT  
APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following post:—

ENGINEER required by the Government of Nigeria for Railway Capital Works for one tour of 12-24 months, with probability of further employment. Salary £720 a year. Free passages and quarters and liberal leave on full salary. Candidates, not over 45, must have a good knowledge of bridge foundations and underpinning; bridge construction with concrete piers and abutments and steel spans; false-work; replacing culverts under traffic, necessitating cutting through railway banks by use of shoring and erecting temporary bridges to carry the track. Preference will be given to candidates who are Corporate Members of the Institution of Civil Engineers.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/5470.

## The Central Argentine Railway Limited.

NOTICE IS HEREBY GIVEN that the Transfer Books of the 4 per cent. Debenture Stock and the 3½ per cent. Central Debenture Stock of the Company will be closed from the 9th to the 21st December, both days inclusive, for the preparation of Warrants for interest for the half-year ending 31st December, 1937.

RONALD LESLIE,  
London Manager and  
Secretary.3A, Coleman Street,  
London, E.C.2.  
30th November, 1937.

## Bengal-Nagpur Railway Company Limited

THE Directors are prepared to receive Tenders for:—

(A) 1,900 STEEL ENGINE AND TENDER TYRES;

(B) 2,800 COLD DRAWN WELDLESS AND 500 SUPERHEATER FLUE TUBES.

Specifications and Forms of Tender can be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after 29th November, 1937.

A fee of 20s. will be charged for each copy of Specification A and of 10s. for Specification B, which is NOT returnable.

Tenders must be submitted not later than Noon as follows:—

Specification A on Friday, 10th December, 1937.

Specification B on Tuesday, 7th December, 1937.

The Directors do not bind themselves to accept the lowest or any Tender, and reserve to themselves the right of reducing or dividing the order.

By Order of the Board,  
T. R. WYNNE,  
Managing Director.

## Government of India

ASSISTANT ENGINEERS (INSPECTION)  
WAGONS.

APPLICATIONS are invited for two appointments as Assistant Engineer (Inspection) in the Indian Stores Department.

Candidates must be British subjects or subjects of an Indian State, aged between 24 and 35 years, and should have had a sound general education. They should have served an apprenticeship or pupillage of not less than three years with a firm of steel railway wagon builders or in railway workshops, followed by at least two years' experience in a responsible post connected with the fabrication of steel railway wagons or in railway workshops. During apprenticeship or subsequently, at least six months should have been spent in a drawing office. Full practical experience essential. Agreement for five years in first instance. Pay scale Rs. 350 rising by annual increments of Rs. 25 to Rs. 550 a calendar month and thence by increments of Rs. 30 to Rs. 700 a calendar month. Initial pay in scale according to qualifications and experience. In addition, Overseas Pay of Rs. 150 a calendar month will be granted to officers of non-Asiatic domicile. Free passage to India. House rent allowance. Provident Fund.

Further particulars and forms of application may be obtained, on application by postcard, from the High Commissioner for India, General Department, India House, Aldwych, London, W.C.2. Last date for receipt of applications 18th December, 1937.

## London and North Eastern Railway

NOTICE IS HEREBY GIVEN that, for the purpose of preparing the warrants for interest on the Company's 3 per cent. and 4 per cent. Debenture Stocks and 4½ per cent. Sinking Fund Debenture Stock for the half-year ending 31st December, 1937, the balances will be struck as at the close of business on 11th December, and interest will be payable only to those Stockholders whose names are registered on that date.

Transfers of the above-mentioned Stocks should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street Station, London, E.C.2, before 1.0 p.m. on 11th December.

By Order,  
JAMES McLAREN,  
Secretary.Marylebone Station,  
London, N.W.1.  
1st December, 1937.

## Canadian National Railway Company

WELLINGTON GREY & BRUCE RAILWAY  
COMPANY, 7 PER CENT. BONDS.NOTICE IS HEREBY GIVEN that the estimated earnings of the Wellington Grey & Bruce Railway Company for the half-year ending 31st December, 1937, applicable to meet interest on the above Bonds, will admit of the payment of £4 5s. 3d. per £100 Bond, and that this payment will be applied as follows, viz.:—  
£2 17s. 1d. in final discharge of Coupon No. 111 due 1st January, 1926; and £1 8s. 2d. on account of Coupon No. 112 due 1st July, 1925, and will be made on and after 1st January next at the offices of the Canadian National Railway Company, Orient House, 42/5, New Broad Street, London, E.C.2, England.

The coupons must be left three clear days for examination.

A. H. CONEYBEARE,  
European Secretary and  
Treasurer.London,  
1st December, 1937.

## Canadian National Railway Company

WELLINGTON GREY & BRUCE RAILWAY  
COMPANY, 7 PER CENT. BONDS.

AT the semi-annual ballot for November, 1937, the following Wellington Grey &amp; Bruce Railway Company 7 per cent. Bonds were drawn and will be paid at par at the offices of the Canadian National Railway Company in Montreal, Canada, or at Orient House, 42/5, New Broad Street, London, E.C.2, England, on the 1st January next, that is to say, Bonds numbered: 612, 649, 711, 722, 751, 1035, 1111, 1135, 1174, 1225, 1339, 1390, 1493, 2089, 2121, 2404, 2428, 2464, 2593, 2612, 2792, 2849, 3089, 3116, 3156, 3189, 3368, 3479, 3492, 3554, 3637, 3653, 3718, 3817, 4055, 4216, 4218, 4220, 4257, 4265, 4266, 4288, 4402, 4480, 4487, 4614, 4655, 4776, 4876, 4943, 4947, 4802, 4908, 4947, 4984, 5051, 5126, 5136, 5203, 5205.

In all £6,000 sterling.

Holders of these Bonds will take notice that the interest will cease after 1st January next.

A. H. CONEYBEARE,  
European Secretary and  
Treasurer.London,  
1st December, 1937.

MEMORIAL SERVICE FOR MR. DOUGLAS VICKERS.—A memorial service for Mr. Douglas Vickers (a biography of whom appears on page 989) was held at Holy Trinity, Sloane Street, London, S.W., on December 1. Among those present, in addition to the family mourners were:—

Sir Josiah Stamp (Chairman), Mr. E. B. Fielden (Deputy Chairman), and Messrs. W. L. Hichens, G. R. T. Taylor (Directors), L.M.S.R.; Major W. H. Christie Clay (Estate Manager) and Mr. O. Glynn Roberts (Secretary), L.M.S.R.; Mr. Meyer Isaacs and Mr. C. R. Salmon (Sir W. G. Armstrong Whitworth &amp; Co. (Engineers) Limited), Major E. I. Scott and Mr. Alex. Dunbar (English Steel Corporation Limited), Mr. H. Green and Mr. J. Worley Fawcett (Firth-Vickers Stainless Steels Limited), Mr. A. J. Tomalin (Vickers-Armstrongs Limited), Col. D. S. Branson (Park Gate Iron &amp; Steel Co. Ltd.).

GENERAL MOTORS AT SOUTHAMPTON DOCKS.—General Motors Limited has decided to consolidate its activities, with the exception of overseas sales, in Southampton. For this purpose a building will be constructed on the new land in the Southern Railway Company's docks, which will house the warehouse, parts department, service department, and the head office. As business conditions justify, it is possible that steps will be taken to assemble some of the products, which are manufactured by the General Motors Corporation of U.S.A.

## Railway Share Market

Renewed hopes of an easing of tension in international affairs have led to a larger volume of business in the stock and share markets. The general tendency has been to higher prices and Home railway stocks were responsive to the better trend. The past week's traffics were regarded satisfactorily, although the gain of £153,000 was well below the excellent upward movement shown by the figures for the previous week. Coal receipts were again the chief contributor to the rise in traffics.

The L.M.S.R. return was considerably better than that of the other main line railways, the gain in this case being £79,000. The railway's ordinary stock, which was reported to be more active than for some time, changed hands at over 29. The 4 per cent. preference and 1923 preference stocks also received more attention at 81 and 70 respectively. The Great Western's £25,000 rise in receipts for the past week was viewed satisfac-

torily and the ordinary stock came in for a good deal more attention on Wednesday and transferred up to close on 62. L.N.E.R. second preference was fractionally better at 26½, although the market had been inclined to anticipate a larger rise in receipts than the £38,000 shown by the return. The 4 per cent. first preference was more active up to 68½, attention being drawn to the attractive yield, while both the preferred and deferred stocks were in request on any decline. The Southern's traffics (which show a gain of £11,000 for the week) were below market anticipations, but the deferred transferred over 19 and there was improvement in the preferred up to 86½. The market is continuing to take a hopeful view of dividend prospects of the junior stocks of the main line railways, particularly in the case of Great Western and L.M.S.R. There appear to be conflicting opinions in regard to the likely

payment on L.N.E.R. second preference. It is felt that in this case a good deal may depend on the receipts shown for the remaining weeks of the year. London Transport "C" stock had a dull appearance at 81½.

There was an improved trend in foreign railway stocks in sympathy with general market conditions, but the tendency is to await better traffics. Attention centred largely on the preference stocks of the Argentine companies, but rather higher prices were also made by Central Argentine, B.A. Gt. Southern and B.A. Western ordinary. Cordoba Central debentures reacted on fears that some time may elapse before the Argentine Government finally purchases the line. Elsewhere, San Paulo was steadier than of late, while Nitrate Rail and Antofagasta moved in favour of holders. American railway issues generally moved to higher levels, and Canadian Pacific improved.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1936-37	Week Ending	Traffics for Week		No. of Weeks	Aggregate Traffics to Date			Shares or Stock	Prices			
			Total this year	Inc. or Dec. compared with 1936		Totals		Increase or Decrease		Highest 1936	Lowest 1936	Dec. 1, 1937	Yield * (See Note)
						This Year	Last Year						
South & Central America													
Antofagasta (Chili) & Bolivia	834	28.11.37	£ 22,860	+ £ 3,530	48	799,180	667,920	+ £ 131,260	Ord. Stk.	25	151½	141½	Nil
Argentine North Eastern	753	27.11.37	8,530	- 1,305	22	213,969	206,684	+ 7,276	A. Deb.	12	2	6	Nil
Argentine Transandine	—	—	—	—	—	—	—	—	Ord. Stk.	54	45	85	41½
Bolivar	174	Oct., 1937	3,700	- 2,200	44	53,050	63,600	- 10,550	6 p.c. Deb.	9	5	8½	Nil
Brazil	—	—	—	—	—	—	—	—	Bonds	16	11½	11	49½
Buenos Ayres & Pacific	2,806	27.11.37	79,404	+ 698	22	1,719,728	1,657,047	+ 62,681	Ord. Stk.	17½	6	7	Nil
Buenos Ayres Central	190	13.11.37	\$100,300	- \$54,200	20	\$2,774,800	\$2,775,306	- \$506	Mt. Deb.	31½	11	26½	Nil
Buenos Ayres Gt. Southern	5,084	27.11.37	139,082	+ 10,729	22	2,676,179	2,463,255	+ 212,924	Ord. Stk.	31½	13½	18	Nil
Buenos Ayres Western	1,930	27.11.37	47,953	- 3,341	22	999,939	896,290	+ 103,649	"	29½	11	14½	Nil
Central Argentine	3,700	27.11.37	111,517	- 31,440	22	2,782,236	3,020,974	- 238,738	"	32½	8½	14 ½	Nil
Do.	—	—	—	—	—	—	—	—	Pfd.	21	41½	7	Nil
Cent. Uruguay of M. Video	980	20.11.37	20,035	- 2,367	21	334,095	334,490	- 395	Ord. Stk.	7½	3	3	Nil
Cordoba Central	1,218	27.11.37	30,580	- 3,180	22	634,320	708,780	- 14,460	Ord. Inc.	5	1	3	Nil
Costa Rica	188	Sept., 1937	24,141	+ 14,946	13	78,466	52,763	+ 25,683	Stk.	36½	32	31½	6½
Dorada	70	Oct., 1937	14,700	- 400	44	154,300	141,700	+ 12,600	1 Mt. Db.	107	101½	107½	59½
Entre Rios	810	27.11.37	14,001	- 525	22	293,539	278,678	+ 14,861	Ord. Stk.	17	6	7½	Nil
Great Western of Brazil	1,092	27.11.37	13,000	+ 1,100	48	378,000	380,300	- 2,300	Ord. Sh.	12	5½	8	Nil
International of Cl. Amer.	794	Oct., 1937	\$443,577	+ \$149,452	44	\$4,870,123	\$4,223,770	+ \$646,353	"	—	—	—	—
Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	12	-/6	12	Nil
La Guaira & Caracas	22½	Oct., 1937	4,155	- 150	44	51,820	45,850	+ 5,970	Stk.	9	3	8½	Nil
Leopoldina	1,918	27.11.37	23,076	- 1,305	48	1,108,503	938,396	+ 170,107	Ord. Stk.	10½	3½	3½	Nil
Mexican	483	21.11.37	\$210,600	- \$100,100	21	\$5,953,900	\$5,451,000	+ \$502,900	"	11½	14	12	Nil
Midland of Uruguay	319	Oct., 1937	8,915	+ 76	18	32,602	32,299	+ 303	"	11½	10	12	Nil
Nitrate	384	15.11.37	9,315	+ 3,297	46	135,662	107,905	+ 27,757	Ord. Sh.	63½	41½	21½	Nil
Paraguay Central	274	20.11.37	\$2,725,000	+ \$291,000	21	\$65,473,000	\$53,495,000	+ \$11,978,000	Pr. Li. Stk.	85	71	80½	77½
Peruvian Corporation	1,059	Oct., 1937	84,277	+ 2,272	18	347,951	339,051	+ 8,900	Pref.	15	9	5	Nil
Salvador	100	20.11.37	£15,800	+ £3,703	21	£258,194	£234,108	+ £24,086	Pr. Li. Db.	18	16	22½	Nil
San Paulo	153½	21.11.37	25,497	- 10,639	47	1,527,987	1,377,253	+ 150,734	Ord. Stk.	86	46½	59½	8½
Taltal	160	Oct., 1937	2,815	- 850	18	12,885	12,420	+ 465	Ord. Sh.	11½	14-	34	15½
United of Havana	1,353	27.11.37	14,273	- 222	22	361,125	333,876	+ 27,249	Ord. Stk.	31½	1	2	Nil
Uruguay Northern	73	Oct., 1937	979	- 192	18	3,384	3,771	- 387	Deb. Stk.	5	3	3½	Nil
Canada													
Canadian National	23,767	21.11.37	751,492	- 26,029	47	35,416,908	32,950,638	+ 2,466,270	Perp. Dbs.	76	51	61½	6½
Canadian Northern	—	—	—	—	—	—	—	—	4 p.c. Gar.	104½	99½	98½	41½
Grand Trunk	—	—	—	—	—	—	—	—	Ord. Stk.	163½	101½	8	Nil
Canadian Pacific	17,228	21.11.37	579,400	+ 32,400	47	25,771,400	24,551,200	+ 1,220,200	"	—	—	—	—
India													
Assam Bengal	1,329	31.10.37	47,880	+ 4,664	29	783,266	737,848	+ 45,418	Ord. Stk.	87½	82½	79½	3½
Barsi Light	202	31.10.37	2,655	+ 578	29	72,802	65,932	+ 6,870	Ord. Sh.	77½	65½	53	91½
Bengal & North Western	2,111	10.11.37	72,594	- 4,621	6	276,647	291,452	- 14,805	Ord. Stk.	319	292½	308	52½
Bengal Doonars & Extension	161	10.11.37	4,639	+ 186	30	90,747	87,102	+ 3,645	"	127½	118	86½	7
Bengal-Nagpur	3,268	10.11.37	165,450	- 13,920	30	4,164,923	3,687,534	+ 477,389	"	104	100½	90½	4½
Bombay, Baroda & C. India	3,072	20.11.37	251,250	+ 41,100	32	5,517,375	5,144,850	+ 372,525	"	114	110½	111½	5½
Madras & Southern Mahratta	3,229	10.11.37	128,325	- 2,531	30	3,315,735	3,267,066	+ 48,669	"	116½	108½	105½	8½
Rohilkund & Kumaon	572	10.11.37	10,271	- 1,391	6	45,347	50,253	- 4,906	"	311	286	310	51½
South Indian	2,531½	31.10.37	126,568	+ 5,195	29	2,473,403	2,377,047	+ 96,356	"	107½	102½	102½	5½
Various													
Beira-Umtali	204	Sept., 1937	98,053	+ 13,994	52	975,721	893,277	+ 172,444	—	—	—	—	—
Egyptian Delta	620	31.10.37	11,850	+ 1,579	29	150,462	138,948	+ 11,514	Prf. Sh.	21½	19½	11½	Nil
Great Southern of Spain	—	—	—	—	—	—	—	—	Inc. Deb.	12	18	3½	Nil
Kenya & Uganda	1,625	Oct., 1937	189,128	+ 6,241	44	2,303,239	2,131,020	+ 172,219	"	—	—	—	—
Manila	—	—	—	—	—	—	—	—	B. Deb.	50½	37	45½	8½
Midland of W. Australia	277	Sept., 1937	15,003	+ 33	13	37,926	36,835	+ 1,092	Inc. Deb.	97	93½	95	4½
Nigerian	1,900	16.10.37	47,452	+ 3,325	29	1,345,628	861,343	+ 476,285	"	—	—	—	—
Rhodesia	2,451	Sept., 1937	432,312	+ 96,504	52	4,635,398	3,543,364	+ 1,092,034	"	—	—	—	—
South Africa	13,263	13.11.37	658,654	+ 25,830	33	20,965,145	19,689,621	+ 1,275,524	"	—	—	—	—
Victoria	4,774	June, 1937	793,223	+ 89,530	52	10,135,291	9,689,925	+ 445,366	"	—	—	—	—
Zafra & Huelva	112	Sept., 1937	15,307	+ 8,641	39	117,046	65,948	+ 51,098	"	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador and Paraguay Central receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value.